

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
AT CHARLESTON

_____ X
THE CITY OF HUNTINGTON, : Civil Action
Plaintiff, : No. 3:17-cv-01362
v. :
AMERISOURCEBERGEN DRUG :
CORPORATION, et al., :
Defendants. :
_____ X
CABELL COUNTY COMMISSION, : Civil Action
Plaintiff, : No. 3:17-cv-01665
v. :
AMERISOURCEBERGEN DRUG :
CORPORATION, et al., :
Defendants. :
_____ X

BENCH TRIAL - VOLUME 6
BEFORE THE HONORABLE DAVID A. FABER, SENIOR STATUS JUDGE
UNITED STATES DISTRICT COURT
IN CHARLESTON, WEST VIRGINIA

MAY 10, 2021

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1 PROCEEDINGS had before The Honorable David A. Faber,
2 Senior Status Judge, United States District Court, Southern
3 District of West Virginia, in Charleston, West Virginia, on
4 May 10, 2021, at 9:00 a.m., as follows:

5 THE COURT: Mr. Mahady?

6 MR. MAHADY: Good morning, Your Honor. I hope you
7 had a nice weekend.

8 The defendants want to put a marker down before the
9 plaintiffs call Dr. Craig McCann. We have received the
10 plaintiffs' disclosures of the exhibits and the
11 demonstratives that they intend to use with Dr. McCann this
12 morning. A lot of the exhibits that they intend to use with
13 Dr. McCann are charts and summaries that largely reflect his
14 analysis of both the ARCos data and other datasets.

15 The plaintiffs have identified these charts and
16 summaries as 1006 summaries under Federal Rule of Evidence
17 1006. The defendants disagree with that characterization.
18 We do not believe these fall under 1006. We believe these
19 are demonstratives and, if anything, they fall under Rule
20 611(a). And so, we are putting the marker down just to make
21 the Court aware that we will likely have objections during
22 the course of the testimony, but we just wanted to get that
23 out there now so you know where we're coming from.

24 THE COURT: Okay. I think I understand.

25 Do you want to respond to that, Mr. Farrell, Ms.

1 Kearse, anybody else?

2 MR. MOUGEY: Yes, sir. Good morning, Your Honor.

3 THE COURT: Good morning.

4 MR. MOUGEY: Peter Mougey for the plaintiffs.

5 Simple math. Simple math calculations. A lot of data.

6 Simple math. It's addition, subtraction, averages.

7 And I think Your Honor will see, once we get going
8 through this, that's exactly what it is. It's specifically
9 appropriate for 1006.

10 THE COURT: Well, I think I need to see them.

11 MR. MAHADY: Thank you, Your Honor.

12 THE COURT: All right.

13 MR. MOUGEY: Good morning, Your Honor. Peter
14 Mougey for the plaintiffs. We'd call Dr. McCann to the
15 stand.

16 COURTROOM DEPUTY CLERK: Please state your full
17 name.

18 THE WITNESS: Craig McCann.

19 COURTROOM DEPUTY CLERK: Thank you. Please raise
20 your right hand.

21 **CRAIG MCCANN, PLAINTIFF WITNESS, SWORN**

22 COURTROOM DEPUTY CLERK: Thank you. Please take
23 a seat.

24 **DIRECT EXAMINATION**

25 **BY MR. MOUGEY:**

1 **Q.** Good morning, Dr. McCann. Would you please introduce
2 yourself to the Court?

3 **A.** Yes. Good morning, Your Honor. My name is Craig
4 McCann.

5 **Q.** And, Dr. McCann, where are you currently employed?

6 **A.** I'd employed at a firm called Securities Litigation and
7 Consulting Group, Inc. It's a Virginia incorporated company
8 based in the suburbs outside of Washington, DC.

9 **Q.** And, Dr. McCann, have you prepared a CV that walks
10 through your education, and experience, and your employment
11 experience?

12 **A.** Yes, I have.

13 MR. MOUGEY: Your Honor, permission to publish 204,
14 Dr. McCann's CV, just for demonstrative purposes.

15 THE COURT: Any objection?

16 MR. MAHADY: No objection, Your Honor.

17 THE COURT: Without objection, it may be done.

18 BY MR. MOUGEY:

19 **Q.** Dr. McCann, if I could direct your attention to Page 3,
20 which walks the Court through your education, if we could
21 start there and just starting with your Ph.D. and work
22 backwards, if you would, please.

23 **A.** Sure. I have a Ph.D. from the University of California
24 at Los Angeles. Prior to receiving the UCLA Ph.D., I have
25 an undergraduate degree and a Master's degree from the

1 University of Western Ontario in London, Ontario.

2 **Q.** And your Ph.D. is in Economics, Dr. McCann?

3 **A.** Yes, that's correct.

4 **Q.** And would you please walk the Court through your -- as
5 far as your academic background, what your experience was
6 with dealing with large datasets, empirical analysis, just
7 your use of the large datasets in your academic background?

8 **A.** Sure. For a researcher like myself back in the 1980s
9 studying for a Ph.D., some of my peers were what we would
10 call theoreticians and others empiricists. And so, a
11 theoretician would develop models to try and explain --
12 highly abstract models to try and explain real world
13 phenomenons.

14 And an empiricist would use data to test theories or to
15 infer something from the data that might be useful for
16 developing theories.

17 I would describe myself as an empiricist. So, my
18 dissertation advisors, primarily Harold Demsetz, was a
19 famous empiricist and I thought of myself in that same
20 field.

21 **Q.** In addition to your academic background, I believe you
22 also have your Charter Financial Analyst designation. Would
23 you please walk the Court through what that is and what that
24 entails?

25 **A.** Sure. It's the preeminent designation in the portfolio

1 management industry, the Wall Street Analyst Community, and
2 a couple of other sub-industries. It involves three
3 day-long exams and the satisfaction of a practical
4 experience requirement in Applied Investment Management.

5 **Q.** All right. On Page 2 of your CV, you identify each of
6 your different places of employment. Obviously, you already
7 testified that you work at SLCG. Would you explain to the
8 Court what SLCG is and then, just from a 30,000-foot-view,
9 walk Your Honor through your employment experience?

10 **A.** Sure. Well, maybe I would start when I left UCLA in
11 1987, I started teaching at the University of South Carolina
12 in Columbia, South Carolina and I taught there five years in
13 the business school, and then came to Washington, DC to work
14 at the Securities and Exchange Commission. I worked at the
15 SEC 1992 and 1993 and '94-'95. Between those two stints at
16 the SEC, I managed a consulting firm in Los Angeles owned by
17 one of my dissertation advisors.

18 When I left the SEC the second time, in 1995, I started
19 working at a series of large consulting firms. The best
20 known one is KPMG, Peat Marwick. I worked there two years.
21 But before Peat Marwick, I worked at NERA, National Economic
22 Research Associates, for two years and, after KPMG, at
23 Navigant Consulting for a year.

24 But in 2000, so 21 years ago now, I started Securities
25 Litigation Consulting Group. And we provide consulting

1 services, including testimony in litigation, primarily in
2 arbitrations and in court cases like this, of course.
3 Primarily, up until a few years ago, all of it was data
4 analysis and securities or investment area. Almost all of
5 it. Increasingly, it's been more broadly applications of
6 data analysis.

7 COURT REPORTER: Sir, could you pull the
8 microphone closer to your face, please?

9 THE WITNESS: Oh, yes.

10 COURT REPORTER: Thank you.

11 THE WITNESS: I'm sorry.

12 BY MR. MOUGEY:

13 **Q.** During your professional experience at each of these,
14 including your academic background, has a part of your
15 employment included -- or routine part of your employment
16 included taking on large datasets, such as what we're going
17 to walk the Court through in this case, organizing the data,
18 processing it, cleaning or scrubbing it up, as you've done
19 here?

20 **A.** Yes. Even back to when I was at UCLA 35 or 40 years
21 ago, I would go through all of those steps. For instance,
22 in my dissertation, instead of getting data electronically,
23 I had to actually go to the library and get microfiche and
24 write the numbers down off of the microfiche, maybe print.
25 Micro-film was something like a dollar a copy to print, so

1 we didn't do too much of that as graduate students, but --
2 so, for 40 years, I've been gathering data, checking it
3 against other sources, supplementing it, combining data from
4 different datasets on some key, and then producing reports,
5 summary tables, and charts, like in my work here, or in
6 other cases, some other types of analysis, maybe some
7 statistical analysis. And that's true from 1983 to 2021,
8 the main difference being that the datasets get bigger and
9 access to them, of course, gets better.

10 **Q.** Dr. McCann, beginning on Page 18 of your CV, you walk
11 through some of your publications. Have you generated
12 peer-reviewed articles that have appeared in, for example,
13 *Journal of Finance*, any of the academic journals?

14 **A.** Yes. I've published around 80 working papers, academic
15 length and style working papers, early in my career. I
16 didn't polish those to a peer-review standard, but in recent
17 years, in the last ten years, we made that extra effort and
18 I published around 35 papers in peer-review journals and I
19 have -- I have one out right now and a second one that I'm
20 about to submit in the next week or two to the peer-review
21 process. It's something that my staff and I work on
22 regularly as part of -- as part of our work.

23 **Q.** Now, the peer-review in the last ten years, the 30 or
24 40 peer-reviewed articles that you have, did each or any of
25 those articles include managing large datasets, cleaning,

1 scrubbing, processing the datasets, as you've done here?

2 **A.** Yes. A few of them might be purely mathematical,
3 purely theoretical, but the vast majority of them are what I
4 would describe again as empirical where we're gathering data
5 from different sources, reporting summary statistics,
6 generating tables, figures, charts. And then maybe doing
7 some statistical analysis or some valuation beyond the
8 simple data summary of the type that I'm presenting here
9 with the opioid data.

10 **Q.** Now, prior to your work in the opiate litigation, have
11 you been retained by any federal or state governmental
12 agencies?

13 **A.** Yes. Over the years, I've done a lot for different
14 state and federal agencies for the SEC, the FDIC, the
15 Justice Department. And then, state Securities Commissions
16 or Attorney Generals around the country, at least 20 or 25
17 individual state Securities Commissions, Attorney Generals,
18 or some other agency.

19 **Q.** Now, in the opiate litigation, have you been retained
20 by any Attorneys General to analyze the data similar to what
21 you've done in this case?

22 **A.** Yes.

23 **Q.** And which states, if you can recall?

24 **A.** So, Ohio, Florida, New Mexico, Michigan, New York. I'm
25 missing two or three. So, there's eight or nine different

1 state Attorney Generals that have hired us, hired my firm,
2 hired me as the testifying expert.

3 **Q.** Have you been -- have you testified as an expert prior
4 to today?

5 **A.** Yes.

6 **Q.** How many times approximately?

7 **A.** Approximately 600 times.

8 **Q.** And in state and federal court?

9 **A.** About 125 times. Most proudly defined to be by expert
10 report or deposition in about 125 cases. Most narrowly
11 defined to be in open court in front of a judge about 30
12 times. And then, in addition to those 120 or 150 cases in
13 state and federal court, I've testified about 450 times in
14 administrative proceedings or in arbitrations.

15 **Q.** Dr. McCann, are there standard software packages that
16 folks like yourself can use to process, to organize, gather
17 huge datasets as you've done in this case?

18 **A.** Yes, sir.

19 **Q.** And are those kind of off-the-shelf, so to speak,
20 software packages?

21 **A.** Yes. The way to think about them is you think of
22 Microsoft Excel as an off-the-shelf package and then, within
23 Microsoft Excel, you might program some macros, what we call
24 macros routines that custom -- that you're doing yourself,
25 but the base is what you describe as an off-the-shelf

1 package. And that would be true for statistical analysis,
2 for instance.

3 **Q.** And which -- which software package did you use to
4 analyze the ARCOS data in this case?

5 **A.** Well, the primary package is called R, just capital R,
6 and it's the statistic software used primarily by -- by
7 researchers. It's an open source software package. And so,
8 most published papers, when they give the data, appendices
9 and the -- and they describe what software they use to do
10 the work, they -- they are going to reference R.

11 R is interchangeable with other packages. People used
12 to use something called SAS, S-A-S, or SPSS, but that's very
13 expensive software and so maybe \$20,000.00 for a license.
14 So, academics and researchers developed R as a fully
15 compatible, fully functional substitute that is free.

16 There's some of the other software we used you could
17 think of, as well, as interchangeable. It's like when there
18 used to be Excel and Lotus 1-2-3, they were both
19 spreadsheets.

20 Same thing with a lot of the software packages. You
21 use the right package for the task that you're doing, but
22 for any given task, there's probably three or four different
23 packages that you could be using. We tended to use R
24 because the programmers in my office are R programmers.

25 **Q.** And have you used R before this case? Is it generally

1 accepted in the industry?

2 **A.** Oh, yes, absolutely.

3 **Q.** And, Dr. McCann, have you ever worked with the DEA
4 prior to this case as far as the ARCOS data?

5 **A.** Not that I'm aware of.

6 **Q.** Do you believe that it limits your ability in any way
7 to -- that you weren't a DEA investigator, a DEA field
8 officer, to take in the data, process it, and organize it?

9 **A.** No. Not only did it not limit me, it wouldn't add
10 anything to what I did. I didn't use any subject matter
11 expertise. The data that we analyzed are bits. They're
12 data and we would organize the data. We would summarize it.
13 We would present it the same whether it was opioid
14 shipments, or shipments of wheat, so long as we had just a
15 very small input, very limited input, on the interpretation
16 of the data, but we got all of that from the -- or virtually
17 all of it from government websites that explained the data.

18 So, just like any other dataset. You read a manual
19 that explains the data and then organize the data using
20 standard packages.

21 THE COURT: Dr. McCann, was R developed by SAS, if
22 you know?

23 THE WITNESS: I don't know.

24 THE COURT: Okay.

25 BY MR. MOUGEY:

1 **Q.** Dr. McCann, would you walk the Court through how you
2 were able to, just generally, 30,000-foot-view, process,
3 validate and summarize the dataset that you received from
4 the DEA?

5 **A.** Yes. I know that we'll get into it in some detail, but
6 at a very high level, we received a lot of data on hard
7 drives; not as much data as it sounds, but 500 million
8 records of data. Some of that data was relevant to -- was
9 -- touched on the issues in this case. Some of it did not.

10 To give you sort of a trivial example, there are some
11 shipments in the data to exporters. Well, that didn't seem
12 -- to me was not relevant for summarized -- it wasn't
13 relevant to summarize that data. Couldn't summarize that
14 data. It was only a few hundredths of a percent or a few
15 tenths of a percent.

16 But what we did was, we took that data, narrowed it
17 down to shipments from manufacturers, to distributors, to
18 dispensers, and then checked internally that data to find
19 some potential data errors. In a dataset of 200 million or
20 400 million transactions, there's just going to be some data
21 errors. And so, checked for those internally and then
22 checked for those externally by looking at other government
23 data that would bear on the accuracy of the data we received
24 from the DEA.

25 We then also compared the data to data produced by the

1 defendants in discovery in this case that should be the same
2 and was, in fact, the same. And then, we supplemented the
3 data with some additional data sourced from the government,
4 not very much, but a little bit of additional information
5 that was useful for then subtotaling and presenting the --
6 summarizing the data.

7 **Q.** And, Dr. McCann, those steps you just walked through,
8 have those been kind of a similar routine part of your
9 practice, both in your professional experience and your
10 academic experience, as far as gathering, organizing, and
11 processing these large datasets?

12 **A.** Yes, absolutely. I can give examples, if you like.

13 **Q.** I think we'll walk into each one of those.

14 MR. MOUGEY: Your Honor, I would like to offer Dr.
15 McCann as an expert on data processing, validating,
16 supplementing, reconciling and summarizing large datasets as
17 they relate to ARCOS and the related governmental datasets
18 that we've used to supplement.

19 THE COURT: Any objection?

20 MR. MAHADY: Your Honor, I object to the extent
21 the plaintiffs are trying to get Dr. McCann tendered as an
22 expert on ARCOS. He testified that, prior to this case, he
23 had no experience with ARCOS and he has previously testified
24 that no one that worked at his company had experience with
25 ARCOS. So, while he may be an expert on large datasets, Mr.

1 Mougey just included ARCOS as a specific category of
2 expertise.

3 THE COURT: Well, you can cross examine on them.
4 I find Dr. McCann to be an expert on data processing,
5 validating, reconciling and summarizing large datasets as
6 they relate to ARCOS under related governmental datasets.
7 Well, in that statement at the end of ARCOS.

8 MR. MOUGEY: I'm sorry, Your Honor.

9 THE COURT: And you can -- I just found him to be
10 an expert, as you've requested, and I was reading what you
11 said. You made it a little difficult for me there because
12 it's too long.

13 MR. MOUGEY: I have that tendency to do that. I'm
14 not sure that won't be the last time today. Thank you, Your
15 Honor.

16 BY MR. MOUGEY:

17 Q. All right. Let's start off with a real high level, Dr.
18 McCann, and kind of work down with what you've done. And I
19 think you just gave a pretty general explanation, but would
20 you please walk the Court through when you received these
21 hard drives, as you previously testified, from the DEA?
22 Walk the Court through the steps of what you did in a little
23 more detail.

24 A. Sure. So, in the Spring of 2018, three years ago, we
25 received a sample of data from the DEA that reflected opioid

1 shipments. This is data that we've been referring to as
2 ARCOS. ARCOS is the portal through which the DEA gathers
3 the data. So, we're using ARCOS as the shorthand for the
4 opioid shipment data.

5 But we received a sample of that ARCOS data. And then,
6 we received first data on six states and, for a limited
7 number of the 14 opioid drugs we ended up getting data on.

8 And then, in two or three more tranches between May and
9 August of 2018, I think August of 2018 was when we received
10 the last of the data, we received roughly 500 million
11 records of shipments, 14 opioids for a nine-year period,
12 2006-2014.

13 That data, it came in -- you could think of it as a
14 text file. It's an odd looking file. It's not what we
15 might call a comma separated variable file or a standard
16 text file, but it's the type of format that large
17 statistical packages read data in and databases export the
18 data in.

19 Also, we received that data. We were learning about
20 the data as we went along, so it wasn't as if we waited
21 until August to start importing that data into software. We
22 were importing it from the beginning and then going back a
23 couple of times with some questions or some issue with the
24 data we were receiving, getting those resolved.

25 By the time we got to August of 2018, we had that

1 complete ARCos dataset we were going to get. We then, as I
2 said a minute ago, checked it internally for consistency and
3 we found some relatively small numbers of transactions that
4 had some data item that was inconsistent with other parts of
5 the dataset.

6 When I -- I'm going to talk a little bit about these --
7 these corrections or adjustments that we made. They don't
8 really deserve the weight of the testimony I give them
9 because they're on the order of one hundredth of 1% or two
10 hundredths of 1%, but for completeness, I describe the
11 corrections that we made.

12 So, there were a few things like that. We first found
13 internal inconsistencies that we resolved, and then we found
14 comparing the data that was provided to us by the government
15 with other government sources. We found another small
16 number of inconsistencies, which we resolved.

17 **Q.** Okay. Let me stop you there. Let's go back to
18 30-thousand-foot for a minute. Would you explain to the
19 Court just what your understanding of what the ARCos data
20 is? Let's start with how many drugs, geographic scope, and
21 what the types of data that are included in ARCos.

22 **A.** Sure. So, the data, as I said, covers -- was supposed
23 to cover 14 drug codes, opioid drugs, for a nine-year period
24 and it was supposed to be all shipments reported to the DEA
25 in those 14 drugs over those nine years.

1 A record -- a row of data, if you will, identifies who
2 shipped the drug, who received the drug, and what the drug
3 packaging and quantity was.

4 **Q.** Now, the nine years, which nine years? What time
5 period does it cover?

6 **A.** 2006 -- fully 2006 to fully 2014. Nine years.

7 **Q.** It covered the entire United States at the end of the,
8 I think, five or six different datasets you received from
9 the DEA?

10 **A.** Yes. It covers all of the states and it covers the
11 territories, as well.

12 **Q.** Now, did -- along the way of receiving the data, did
13 you have any communications directly between yourself and
14 the DEA; specifically, the DEA IT folks?

15 **A.** Yes.

16 **Q.** And would you explain to the Court just generally what
17 those conversations covered?

18 **A.** Yes. I had a call. My staff and I had a call with
19 staff from the DEA. There were some DEA lawyers, maybe one
20 or two Justice Department lawyers, and a few of the MDL
21 lawyers to describe the data that we were receiving.

22 And it was a short call. It was 10 or 15 minutes. But
23 they generally described the data to us and gave us
24 suggestions for where we would find additional data that we
25 were interested in that we could use to supplement. For

1 purposes of summaries, we were going to create the ARCOS
2 data.

3 **Q.** Now, are you familiar with a document entitled *The*
4 *ARCOS Handbook*?

5 **A.** Yes.

6 **Q.** And would you explain generally what *The ARCOS Handbook*
7 *is to the Court*?

8 **A.** Well, *The ARCOS Handbook* is a pdf manual available on
9 the DEA website that explains -- most of it is explaining
10 how data should be submitted to the DEA. So, it's a
11 handbook or a manual for DEA registrants to use to fill out
12 the submission of records that they're providing through the
13 ARCOS portal. It was useful to us because it included
14 definitions of 12 or 15 of the fields that were in the data
15 that we received from the government.

16 MR. MOUGEY: If I can approach, Your Honor?

17 THE COURT: Yes, you may.

18 THE WITNESS: Thank you.

19 MR. MOUGEY: Your Honor, we've pre-marked *The*
20 *ARCOS Registrant Handbook* at Plaintiffs' Exhibit 23654.

21 BY MR. MOUGEY:

22 **Q.** Dr. McCann, is this *The ARCOS Handbook* you were just
23 referencing to the -- describing to the Court?

24 **A.** Yes.

25 **Q.** And is this an accurate and complete copy of *The ARCOS*

1 *Handbook* that you pulled off of the DEA website?

2 **A.** Yes, it appears to be.

3 **Q.** And, Dr. McCann, did you use this *ARCOS Handbook* to
4 help process the data that you received from the DEA?

5 **A.** Yes.

6 **Q.** And did you use this handbook in combination with your
7 conversations with the DEA about the type of data that you
8 were receiving from the DEA?

9 **A.** Yes. We had this document before the call that I
10 remember with the DEA and, as I said, this handbook
11 describes -- defines roughly 15, 12 or 15 of the fields that
12 are in the data provided to us by the government, but there
13 were some additional fields and it was the interpretation of
14 those additional fields that I recall being a primary
15 purpose of the call with the DEA officials and -- but we
16 also discussed the handbook as part of that call.

17 **Q.** Now, when you and your firm received the DEA *ARCOS*
18 dataset and downloaded it, did the -- and processed it and
19 organized it, did the dataset match the description you
20 received telephonically with the DEA and what was in this
21 *ARCOS Handbook*?

22 **A.** Yes. As I said, virtually perfectly, with the
23 exception of one or two one hundredths of a percent, all of
24 the transactions, all of their entries were consistent with
25 the description in the *ARCOS Handbook*.

1 MR. MOUGEY: Your Honor, I would like to move
2 plaintiffs' Exhibit 203654 (sic) into evidence.

3 THE COURT: Is there any objection?

4 MR. MAHADY: No objection, Your Honor.

5 THE COURT: All right. There being no objection,
6 it's admitted.

7 **PLAINTIFF EXHIBIT 23654 ADMITTED**

8 MR. MOUGEY: Thank you, Your Honor.

9 BY MR. MOUGEY:

10 **Q.** Now, let's start with the -- you got the -- you
11 received the data. You've downloaded it into R. Walk the
12 Court through the processing piece of organizing. I think
13 you mentioned that it wasn't a -- you said a comma separated
14 value file. Explain to the Court what the text file is and
15 how you imported it into R.

16 **A.** Yes. In a -- if you're familiar with a comma separated
17 variable file, Your Honor --

18 **Q.** I think it's safe to assume Your Honor is probably not
19 familiar with a comma separated variable value file.

20 MR. MOUGEY: Judge?

21 THE COURT: That's a very safe assumption.

22 MR. MOUGEY: Thank you. Thank you. I figured.
23 Neither was I.

24 BY MR. MOUGEY:

25 **Q.** All right. Dr. McCann, keep going.

1 **A.** Sure. So, you see a lot of text files that you might
2 import into a software, even simple software like Excel
3 spreadsheets, where the data is organized, each record on a
4 row and each field within the record separated by a comma.
5 So, for instance, if we wanted to get some demographic
6 information about the people in the room here, age, height,
7 gender, weight, we might have four variables like that and
8 there's roughly 40 people in the room. So, a comma
9 separated variable file with that information would have 40
10 rows, one for each of us, and it would have a field for each
11 of us, a value in that field for our height, our age, our
12 sex, and I forget what the fourth item was.

13 So, they would be all -- these field values would be
14 separated by commas. And then, the next record going from
15 me to you would be reflected on another row, another line.

16 In a -- in a text file that comes from the government,
17 the data doesn't wrap on another -- doesn't start another
18 line for each record. It just runs continuously. And if it
19 didn't hit the edge of the page, it would go on forever.

20 But in the data, the way you open the file, if you open
21 it in a word processor, it is just a whole page full of
22 letters and numbers and the separators, instead of being
23 commas, all right, is a vertical line. You'll see it on
24 your keyboard. It's one of the buttons across the top of
25 your keyboard and, if you do shift and that button, you get

1 this vertical line. So, think of that as a replacement for
2 the comma.

3 So, it's similar to a comma separated variable file
4 except that it doesn't -- there's no hard return at the end
5 of each record. It just runs on forever. And, instead of
6 commas, it's these vertical bars that separate the data.

7 That's what the data -- the 500 million records of data, if
8 you were to -- just to give you some visual of that, as I
9 said, it's letters and numbers and these separators. If you
10 printed that on a page, it would just be a dense page of
11 these characters.

12 If you printed the 500 million records we got, there
13 would be roughly 20,000 banker's boxes of these pages. So,
14 it's a lot of data and it's just letters and numbers, but
15 when you read it into the software, it organizes it, just as
16 we then later summarize in records of shipments of opioids
17 from manufacturers and distributors to dispensers.

18 **Q.** Dr. McCann, you mentioned "we" a couple of times.
19 Would you walk the Court through some of your key people
20 that you have on staff and, just generally speaking, what
21 their academic backgrounds are?

22 **A.** Sure. Over the years, my -- my staff is varied between
23 15 and 23 or 24 people. By times, roughly half of us with
24 Ph.D.'s. Right now, there are four Ph.D.'s on staff. The
25 main people working on the opioid project have been myself

1 and a couple of math Ph.D.'s, Applied Math Ph.D.'s, Michael
2 Yan, Mike Yan, and Chuan, C-h-u-a-n, Qin, Q-i-n. They're
3 both coincidentally Applied Math Ph.D.'s from UC Davis.

4 Mike did a post-doc at Cal Tech where he taught in the
5 Math Department for three years before he came to work for
6 me. Mike has been with me a little over ten years now. And
7 Chuan, for five years. So, they do most of the high-level
8 programming, most of the high-level database analysis at my
9 firm, and they did all of that in this case.

10 And then working under them are four Master's level
11 people, primarily Regina Meng, M-e-n-g, and Susan Song, but
12 also, a couple of others. And their role is to -- in my
13 expert report, I produced -- I forgot the number, but 20 or
14 30,000 pages of figures and charts and tables. You couldn't
15 really create those one at a time. You do those on the --
16 on the results of the statistical analysis, the data work,
17 using other software embedded in Excel to create those
18 automatically and Susan, and Regina, and people working with
19 them were primarily responsible for creating the first
20 drafts of these charts and tables.

21 **Q.** Dr. McCann, did you review, supervise, and approve the
22 work that the team of folks that you just walked the Court
23 through generated in this case?

24 **A.** Yes. I -- I ultimately have responsibility for hiring,
25 and firing, and training all of these people and I did, in

1 fact, hire and train all of these people and I did, in fact,
2 hire and train all of these people and I worked with them
3 every day on the opioid project.

4 **Q.** I'm going to fast forward and come back to ARCOS for a
5 second, but would you explain to the Court the Retail Drug
6 Summary Reports and what that dataset is?

7 **A.** Yes. On the DEA website, they produce -- six times a
8 year they publish a report that summarizes at a high level
9 shipments of opioids into particular locales quarterly, the
10 locale being a three-digit zip code county combination. So,
11 if a dispenser is in a three-digit portion of a county, that
12 gets reported as a data item and -- I'm sorry, three-digit
13 within a state. Some three-digit zip codes cross state
14 lines, so there's a little confusion there with that
15 combination, but the DEA produces this report every two
16 months, six times a year, and the data doesn't report
17 detailed transactions the way the ARCOS data does. It just
18 says a certain amount of oxycodone was delivered to this
19 three-digit zip code in this state in this quarter.

20 **Q.** Now, so you can limit the Retail Drug Summary Reports
21 off the DEA website to specific types of opiates?

22 **A.** Yes. Oxycodone, for instance, yes.

23 **Q.** And those were the same types of opiates that -- in the
24 Retail Drug Summary Reports that you also received in the
25 DEA ARCOS dataset?

1 **A.** Yes.

2 **Q.** Now, fast forward again to the defendant's
3 transactional data. Just generally, 30,000 foot, we're
4 going to get into more detail later, but explain the dataset
5 that came from the defendants on the transactional data for
6 opiate shipments.

7 **A.** Well, there was a little variation across the
8 defendants, but the data generally is the same data as we
9 received from the government. It's records of shipments of
10 opioids identified by NDC code that defendants shipped to a
11 particular DEA registrant.

12 We focused on dispensers and that's primarily the data
13 that we received from the defendants. It doesn't have all
14 of the same fields as the ARCOS data does, but it has enough
15 of the same fields that you can line up the records that
16 were produced by the defendants in discovery from the
17 business records with the records that were produced by the
18 government and the records match up virtually perfectly.

19 **Q.** Let's talk about those, the temporal scope of the three
20 different datasets. So, ARCOS, I believe you already
21 testified, was 2006-2014. Do you recall, just generally
22 speaking, the time frame for the Retail Drug Summary Reports
23 that came off the DEA website?

24 **A.** Yes. They go back further. They go back to 1997 and
25 there's a little variation in the time frame available on

1 the Retail Drug Summary Reports because the older Drug
2 Summary Reports seem to have dropped off of the DEA website,
3 but we were first accessing the DEA website and using the --
4 what they call the Wayback Machine. We were able to source
5 the Retail Drug Summary Reports going back to 1996 or 1997
6 and they continue up to the present.

7 **Q.** All right. Is the -- and I won't ask you the specific
8 datasets from the defendants, but are the datasets that the
9 defendants produced on opiate shipments, is that a broader
10 or the same dataset as what you received from the DEA?

11 **A.** Oh, it's broader. Again, it varies by defendant a
12 little bit. All of them encompass the 2006 to 2014 period
13 that we -- that's covered by what we got from the
14 government. Some of the data from the defendants goes back
15 further in time, some of it comes later in time, but they
16 all encompass the ARCOS time period.

17 **Q.** Now, based on your experience, based on your training,
18 did you compare the ARCOS dataset from the government, the
19 Retail Drug Summary Reports, and the defendant transactional
20 data to arrive at some conclusions regarding the reliability
21 of these datasets?

22 **A.** Yes.

23 **Q.** And, Dr. McCann, do you have an opinion within a
24 reasonable degree of professional certainty regarding the
25 reliability of these datasets?

1 **A.** Yes. They're highly reliable.

2 **Q.** And would you just walk the Court generally through
3 some of the steps that you used to compare, you and your
4 staff used to compare the DEA ARCOS dataset with the Retail
5 Drug Summary Reports and the defendant transactional data,
6 just 30,000-foot-view? We'll get -- we'll get into it a
7 little deeper later.

8 **A.** Sure. So, the -- at a high level, comparing the opioid
9 shipment data we got from the government in detail to what
10 the government was producing over time in the retail and
11 Drug Summary Reports is summaries of that data, we were able
12 to -- with the exception of roughly a six-month period and
13 one three-digit zip code in Arizona, we were able to match
14 the summary or subtotals on the detail data we got from the
15 government with the Retail Drug Summary quantities that were
16 being published by the government over time every six -- six
17 times a year.

18 So, we were able to determine that the data that we got
19 and our interpretation of the data was the same as the DEA
20 was putting on that data, the same data that DEA was using
21 and with the same interpretation the DEA was using as it was
22 publishing these reports to the public each year.

23 **Q.** I would like to go into the 34 fields on the DEA ARCOS
24 dataset and I want you to walk the Court through each of
25 those data fields. I believe that you prepared a

1 demonstrative, Demo 210.

2 MR. MOUGEY: Your Honor, may I publish that just
3 for demonstrative purposes?

4 THE COURT: Any objection?

5 Hearing none, yes.

6 MR. MOUGEY: Thank you.

7 MR. SCHMIDT: Could we get a copy though?

8 COURT REPORTER: I'm sorry. What was your name
9 again?

10 MR. SCHMIDT: I'm sorry. Paul Schmidt for
11 McKesson.

12 MR. MOUGEY: May I approach, Your Honor?

13 THE COURT: Yes.

14 THE WITNESS: Thank you.

15 BY MR. MOUGEY:

16 **Q.** All right. Dr. McCann, would you walk the Court
17 through the 34 different fields that came into the ARCos
18 dataset to kind of put them in categories?

19 **A.** Sure. This is how I -- I group that 34 fields that
20 were in that data that we got from the government back in
21 2018. There's really three categories fields or
22 information.

23 The first identifies the seller or shipper of the -- of
24 the package. The second set of ten fields identifies the
25 receiver. The DEA calls it the buyer, calls these sellers

1 and buyers, but they're really shippers and receivers. So,
2 the seller information is the first ten fields that includes
3 the DEA registrant number, and business activity, and name
4 of the business, and then the physical address.

5 So, think of it as sort of like a social security
6 number, a business name, business activity, what they do,
7 are they a manufacturer, or distributor, or some other
8 business activity, and then their physical address.

9 Same thing with the buyer information. The next ten
10 fields gives you a unique identifier, this DEA number, and
11 the business activities side might be a receiver who is a
12 distributor getting drugs from a manufacturer. It might be
13 a pharmacy receiving drugs from a distributor. It might be
14 a clinic receiving drugs from a manufacturer or a
15 distributor. The name of the receiver and the physical
16 address.

17 Then the last 14 fields identify the drug that's being
18 shipped. They tell you something about the actual shipment
19 beyond who is shipping it and who is receiving it.

20 Skipping the transaction code, the ones that I would
21 highlight for you are the drug code and the drug name. And
22 so, the drug code is a four-digit code that identifies the
23 drug family. So, the drug code for oxycodone is 9143. So,
24 the -- and in field 22, it would have a 9143 if, in field
25 24, the drug name had said oxycodone.

1 The NDC number, I'll come back to in a minute, is a
2 more important number, the most important number maybe on
3 the page. And then there's a quantity and a unit field.
4 The quantity is just how many packages of that NDC code are
5 being shipped. Unit is really units of measurements.
6 Different packages come in different units of measurement
7 and so, that's what that field is for.

8 Moving across the -- the calculated base weight and so
9 the transaction date, of course, is critical. Tells you the
10 data transaction was entered, not entered into the system at
11 the DEA, but entered by the shipper in their internal
12 records.

13 The calculated base weight in grams is the total base
14 weight of the drug that's in the shipment. So, it takes
15 into account the NDC code and the quantity. And then the
16 dosage units for -- particularly for the hard forms of drugs
17 tells you how many dosage units are in a package -- I'm
18 sorry -- in the order.

19 Coming back to the NDC code for a minute, the NDC code
20 is something that we use a lot because it identifies -- I
21 hate to use the analogy of a social security number again,
22 but think of it as a social security number. It's 11 digits
23 long and you can use that key to get information on the drug
24 itself. What drug is in it, what -- what packaging it is.
25 Is it tablets? Is it caplets? Is it spray?

1 Whether it's in a package of ten tablets, or 100, or
2 1,000 tablets. There's a lot of information in the NDC
3 number, including what the FDA calls the labeler, but is
4 generally the manufacturer of the drug.

5 **Q.** Dr. McCann, you mentioned -- I know you said shipper.
6 Would you explain to the judge, just in the kind of ARCos
7 vernacular, who the shipper is?

8 **A.** Yes. Well, we're focused on, when we take a subset of
9 this data to report summary statistics on, we focus on what
10 *The ARCos Handbook* refers to as the "S transaction". So,
11 that's the transaction code. "S", you could think of that
12 as sale, but really what it means is shipper because there
13 may not be any money changing hands. There are some
14 transactions where a drug is shipped from one facility to
15 another. There's no cash changing hands. So, I wouldn't
16 really think of it as a purchase in sale, although those
17 terms are used interchangeably.

18 We're focused on the S transactions. And the S
19 transactions are where the reporting entities inventory is
20 decreased, so that would be typically a manufacturer
21 shipping to a distributor or a distributor that's shipping
22 to a clinic or a pharmacy.

23 **Q.** All right. The NDC number, the drug social security
24 number, did you have to use any resources outside of the
25 ARCos database to further refine the NDC number?

1 **A.** Yes. There are two that I recall as I sit here. One
2 is simply called the *NDC Dictionary* and it's also published
3 by the DEA. So *The ARCOS Handbook* and the NDC Dictionary
4 come from the DEA, the same source as the data that we
5 received. And then, we also use an FDA document that allows
6 you to interpret the NDC code to determine who the labeler
7 was. The labeler is the manufacturer or repackager of the
8 drug.

9 **Q.** Let's talk about liquids a minute. Would you explain
10 to the Court like an ampule or any of the opiates that came
11 in liquids, how you were able to address those shipments in
12 ARCOS data?

13 **A.** Well, those shipments don't have dosage units provided
14 in the data, but they do have -- they do have weight, drug
15 weight, and so you can -- you can subtotal the weight of
16 drug and, for instance, hydrocodone syrup, or a codeine
17 syrup, or a Fentanyl spray, or some other liquid product.

18 And then, so you'll see in my subtotals in my summary
19 tables, I have dosage units, calculated base weight in
20 grams, and MME. And for the liquids, you don't have dosage
21 units. Those are only for hard forms like tablets, and
22 lozenges, and a few others, but you do have the base weight
23 in grams and you do have the MME.

24 **Q.** So, for purposes as we begin to get through some of the
25 summaries that you've created, anything that is a liquid is

1 given a value of 0, as far as a dosage unit is concerned?

2 **A.** Correct.

3 MR. MOUGEY: Your Honor, I've pre-marked

4 Exhibit 42199, which is --

5 THE WITNESS: Thank you.

6 BY MR. MOUGEY:

7 **Q.** Let me do this. Dr. McCann, did your office burn to a
8 thumb drive the data that you received from the DEA, we're
9 referring to as the DEA ARCOS database?

10 **A.** Yes.

11 **Q.** And is what your office burned a true and correct
12 accurate copy of the data received from the DEA, what we're
13 referring to as ARCOS?

14 **A.** Yes.

15 MR. MOUGEY: Your Honor, plaintiffs move to enter
16 Exhibit 42199 as the DEA ARCOS transactional data.

17 MR. MAHADY: Thank you, Your Honor. Your Honor,
18 the witness has already testified that the ARCOS database
19 consists of 500 million entries of data. He has also
20 testified that it's unworkable. It's just a massive,
21 massive dataset of letters and numbers that no one can use.

22 So, our primary concern out of the gate is that it's
23 unnecessarily cumulative, it's unworkable, and does not add
24 any value to the Court when considering the claims.

25 The other concern that we have is that it's an

1 end-around around the Court's ruling on geographic scope.
2 This thumb drive contains R distribution data to every
3 pharmacy in the country for a nine-year period. It is not
4 simply aggregate data. It is specific transactional-level
5 data.

6 And if this were to be admitted, the concern is that
7 the plaintiffs will then use the admission of this granular
8 data to get around their requirement that they show a
9 demonstrable nexus between a pharmacy outside of
10 Cabell-Huntington with Cabell-Huntington.

11 So, for those reasons, we do object to the admission of
12 the wholesale ARCOS data produced by the DEA.

13 THE COURT: All right.

14 MR. MOUGEY: Your Honor, first of all, this data
15 is now public and has been public for over two years. This
16 is certainly not an end-around around Your Honor's order
17 regarding the geographic scope.

18 In order for 1006 summaries to be admitted into this
19 court, Your Honor, they need to be admissible and, in order
20 to protect the record, I believe it would be wise to get the
21 underlying data for the 1006s admitted. I'm going to have a
22 series of steps of what is the ultimate dataset that we use
23 to generate the 1006s and the Fourth Circuit has clearly
24 held that the underlying data for the 1006s do not need to
25 be admitted, but they need to be admissible.

1 What's not clear is a ruling from Your Honor -- whether
2 a ruling from Your Honor on whether it's admissible or
3 admitted. What I'm trying to do is make sure the record is
4 crystal clear for any appellate issues that the actual
5 underlying data is admitted.

6 As I mentioned, this data is already public. This
7 isn't an end-around around anything. I still have to stick
8 to Your Honor's rulings on the 1006s and how we present that
9 evidence to the Court for consideration.

10 THE COURT: Well, isn't it cumulative?

11 MR. MOUGEY: Pardon me?

12 MR. MOUGEY: Isn't it cumulative? Don't you have
13 the same information here through the other reports?

14 MR. MOUGEY: The 1006s do capture what's in the
15 series of hard drives. What my concern was, Your Honor, is
16 the requirement that it be admissible and instead of kicking
17 that can down the road, Your Honor, we've laid the
18 foundation through Dr. McCann to get that -- to get this
19 evidence in. I think we've spent more --

20 THE COURT: Well, if it's cumulative, it's in the
21 other records and you don't need this, right?

22 MR. MOUGEY: The 1006 summaries, in order to have
23 a -- you're going to hear -- I believe you're going to hear
24 an objection later down the road that these aren't 1006
25 summaries, as you've already heard today. In order to get

1 the 1006 summaries in as evidence, as opposed to
2 demonstratives, the underlying evidence needs to be
3 admissible.

4 THE COURT: Well, I understand that, but isn't the
5 underlying evidence available through -- through the other
6 records that you're submitting?

7 MR. MOUGEY: It is, Your Honor.

8 THE COURT: I don't understand why you need this.

9 MR. MOUGEY: I simply needed a ruling from Your
10 Honor that this evidence was admissible to meet the
11 requirements of 1006. My concern was the record down the
12 line, that whether or not I had a ruling it was admissible.

13 So, really, this is, quite frankly, what I have and
14 we've been trying to push for the last two or three months
15 of getting this data in front of Your Honor and having a
16 ruling over what it was.

17 THE COURT: Well, but Mr. Mahady says that it
18 contains information that goes on what the Court has
19 previously ruled is relevant to this case, right?

20 MR. MOUGEY: No. No, sir. I do not believe
21 that's accurate. Your Honor has the ruling on geographic
22 scope which you adopted from Judge Polster, was broken into
23 two parts, was one, the systemic issues, which we are not
24 going to get into. I'm not analyzing specific pharmacies
25 around the country.

1 And, number two, the use of, under 130174, orders of
2 unusual size, frequency or pattern. In order for Your Honor
3 to make some decisions about what an unusual order is, we're
4 going to provide some averages and some benchmarks for
5 comparison, which is directly from this data.

6 THE COURT: Well, I'm going to sustain the
7 objection at this point. Unless I misunderstand what's
8 going on here, you don't really need this to make the point
9 you're making and the objection is sustained.

10 MR. MOUGEY: Yes, sir.

11 THE COURT: Okay.

12 BY MR. MOUGEY:

13 **Q.** All right. You've touched on a couple of the different
14 datasets, Dr. McCann, that you supplemented the DEA ARCos
15 set. I would like to drill down into those a little bit
16 further.

17 If you would, let's start with the FDA MME conversion.
18 Would you explain to the judge what you did in regard to the
19 MME and the data from the FDA?

20 **A.** I'm sorry. The MME conversion comes from the CDC.

21 **Q.** I'm sorry. Thank you.

22 **A.** The -- I'm sorry. Would you like me to first talk
23 about the FDA data?

24 **Q.** No. Let's stick with the MME from the CDC, as opposed
25 to the FDA. Thank you.

1 **A.** Sure. So, the drugs have -- the varying opioids have
2 varying, what I would, as a lay person, call potency, but so
3 oxycodone five milligrams is different than hydrocodone five
4 milligrams, which is different than morphine five milligrams
5 and the CDC publishes conversion factors that allow you to
6 go from the weight or strength of one drug family to the
7 weight or strength of one other drug family.

8 So, oxy to hydro, for instance, using a common unit of
9 measurement. So, I think of the MME as a common unit of
10 measurement across these opioids. And so, what's published
11 by the government is a set of factors that you multiply the
12 weight or strength of the drug by to get this MME morphine
13 milligram equivalent.

14 And so, I applied those factors to all of the
15 shipments, including the liquids in the opioid data that we
16 received from the government, to calculate a total MME in
17 each package. And then, in the subtotals, MMEs to
18 particular states, or counties, or zip codes, or pharmacies.

19 **Q.** Did the CDC provide a specific conversion ratio, for
20 example, for hydrocodone versus oxy?

21 **A.** Yes, that's correct.

22 **Q.** And would you explain to the Court what, just
23 generally, those formulas that the CDC provided were?

24 **A.** Sure. So, for one of the drugs the conversion factor
25 is 1:1. So, if you have five milligrams of that drug,

1 you've got five MME.

2 For another drug family, it might be 1.5:1. So, for
3 that -- for five milligrams of that second drug family,
4 you've got 7.5 MME.

5 For a third drug family, the conversion factor might be
6 ten. So, if you have five milligrams of that drug family,
7 you'd have 50 MME. So, it's taking these factors, and there
8 are not that many of them, but -- and their approximations
9 that are useful for generating this common unit of
10 measurement.

11 And I got them from the government website and, on the
12 government website they, in fact, tell you how to implement
13 them, how to use them, and we implemented them in that way,
14 multiplying the factor by the drug weight and then summing
15 that up in our subtotals that are done, the MMES.

16 **Q.** Did the CDC on its publicly available information even
17 provide examples of how to perform the calculations?

18 **A.** Yes.

19 **Q.** Additional pharmacy information, the National Provider
20 Information, or the National Provider, NPIs, would you walk
21 the Court through where you got that information and what
22 you used it for?

23 **A.** Yes. That -- that's a database produced by the Center
24 for Medicaid and Medicare Services, another government
25 agency. And so, if I digress for just a second, the data

1 that we received from the government, the ARCOS data has a
2 buyer business activity and that could have about 30
3 different codes, different values.

4 The two predominant code values there are either R for
5 retail pharmacy or C for chain pharmacy, that's what you see
6 in the ARCOS data.

7 The ARCOS data includes in the retail and chain
8 pharmacies some of what we call closed-door pharmacies. So,
9 think of that as extended care facilities. And these are
10 not pharmacies with any foot traffic, dispensing drugs to
11 the public, walking in the front door anyway.

12 And so, the *NPI Dictionary* produced by the Center for
13 Medicare and Medicaid Services has a finer delineation of
14 these pharmacies and it identifies which pharmacies have a
15 mail order business or have a -- are closed-door pharmacies.
16 And so, we use the *NPI Dictionary* from the CMS to further
17 narrow the subset of data that we were going to summarize to
18 only those retail and chain pharmacies that have walk-in
19 business, if you will. It doesn't make a big difference,
20 but it eliminates the long-term care facilities from the
21 final subset of data that we do subtotals on.

22 **Q.** Talk about drug labelers and the FDA databases that you
23 use. Would you please explain to the Court what you did
24 with the FDA data and how that was useful with processing
25 the data?

1 **A.** Yes. In general, when we were preparing the ARCOS data
2 and then publishing the processed ARCOS data, we included
3 information on the manufacturer of the drug. I don't recall
4 it being used in this case, but the first five characters in
5 that 11-digit NDC code identifies the -- what the FDA calls
6 the labeler and, in almost every instance, that's going to
7 be the manufacturer of the drug, what we think of as the
8 manufacturer.

9 There may be a contract manufacturer that is someone
10 different than the brand manufacturer, but the brand
11 manufacturer is the one with that labeler code.

12 Also, some labelers are what are called repackagers.
13 They may not actually manufacture the underlying drug, but
14 they put the label -- it's called labeler because they put
15 the label on the package.

16 So, primarily manufacturers, but some non-manufacturer
17 labelers, and we -- we use that code in the *FDA Dictionary*
18 to include the labeler information in the data that we
19 process.

20 **Q.** Now, we touched earlier on your conclusions regarding
21 the liability of the data. Dr. McCann, have you prepared
22 some charts that walk the Court through some of your
23 statistical analysis on the comparisons between these
24 different datasets, meaning the defendant transactional
25 data, the Retail Drug Summar Reports, and the ARCOS data?

1 **A.** Yes.

2 MR. MOUGEY: Your Honor, I would like to publish
3 Page 2 of the demonstrative that I previously put up from
4 Dr. McCann that walked through some of this analysis.

5 Dr. McCann, would that be helpful to explain?

6 THE WITNESS: Yes.

7 BY MR. MOUGEY:

8 **Q.** Thank you. All right. Let's start with the Slide 2,
9 which is up on the screen, entitled "Overlap Between ARCos
10 Data and Defendant Data". Would you just please walk the
11 judge through this table and kind of orient what it is?

12 **A.** Yes. It's a high-level summary of some analysis that I
13 did comparing the ARCos data, the opioid data that I
14 received from the government, and the opioid data that the
15 defendants produced in discovery here.

16 And so, the first column, I've got the three
17 defendants, Cardinal Health, AmerisourceBergen, and
18 McKesson. And the first set of numbers, the columns labeled
19 "dosage unit and MME", and then above that, transactions in
20 both datasets, I have, if you will, the overlap between
21 those two datasets.

22 The overlap, just looking at that, the MME number, the
23 overlap is 2,018,702,651. So, if you think about a VENN
24 diagram where you've got two circles with some overlap,
25 that's the extent of the overlap.

1 And what I have in the next two sets of numbers is sort
2 of what's outside of that overlap, within the two circles
3 outside of the overlap. So, first, the transactions only in
4 ARCOS. So, these are the ones that are in ARCOS that cannot
5 be found in the defendant transaction data and you can see
6 that -- I'm going to focus on MME because it's just a more
7 complete characterization of the data than dosage units.

8 You can see that the non-overlap on the ARCOS side of
9 the VENN diagram is only .06 percent. And then, the same
10 interpretation of the transactions only on defendants. This
11 is that little sliver of the defendants' circle in the VENN
12 diagram that is outside of the overlap and it is
13 .18 percent. And this is because there was just some very
14 minor gaps in the ARCOS data, like maybe a month of data for
15 Cardinal Health that would be missing somewhere.

16 And so, we would find those transactions in the
17 defendant produced data and supplement the ARCOS data but,
18 again, it's only -- it's less than two tenths of 1% across
19 the three defendants. So, 99.8% of the data is in both
20 datasets.

21 **Q.** Okay. Now, have you performed a similar analysis
22 breaking down each defendant, defendant by defendant, in the
23 following charts?

24 **A.** Yes. This chart that we're looking at right here
25 covers all of the drugs. And then, what I've done is for

1 each of the defendants, I break down the overlap or the
2 mismatch, depending on how you want to think of it, by drug
3 code.

4 **Q.** All right. Let's start with Cardinal on Slide 3.
5 Would you walk the Court through your conclusions comparing
6 Cardinal's ARCOS data to Cardinal's transactional data?

7 **A.** Yes. As I -- as I foreshadowed or alluded to in my
8 prior answer, for Cardinal, there was one month missing from
9 the ARCOS data that we found in the defendant transaction
10 data. So, excluding March of 2008 that's noted across the
11 top, the overlap is perfect.

12 So, I've got MME in the matched column, third column
13 from the -- from the left totals 575,426,204 MME. And the
14 MME that is outside of that overlap in the VENN diagram in
15 ARCOS is 38,000 and only in the defendant transaction
16 65,000. So, in total, 100,000 on 575 million. It's -- it
17 is truly diminimous, except for there was three weeks, for
18 some reason, three weeks in March of 2008, it is my
19 recollection, where there was no Cardinal transactions in
20 the ARCOS data.

21 **Q.** And I apologize for not asking you this earlier, but
22 the comparisons between the defendant transactional data and
23 the DEA's ARCOS data is obviously during the time frame that
24 they overlapped, 2006 to 2014?

25 **A.** Correct.

1 **Q.** All right. Dr. McCann, have you performed a similar
2 comparison with AmerisourceBergen's transactional data?

3 **A.** Yes, and you see the same pattern. Going through each
4 column, you'll see, looking at the percent MME that is only
5 on ARCOS, it's .12% and the percent MME only in the
6 defendant data, .04%. So, again, 99.85% with the data is in
7 the overlap, not in the little slivers outside of the
8 overlap. The two datasets are, for all intents and
9 purposes, the same dataset.

10 **Q.** All right. Dr. McCann, McKesson's dataset, did you
11 perform the same analysis on McKesson that you did on ABC
12 and Cardinal?

13 **A.** Yes.

14 **Q.** And so, that's Slide 5?

15 **A.** Yes. And with really virtually identical results.
16 Again, focusing on the -- only in ARCOS MME percent, there
17 is effectively no transactions in ARCOS that can't be found
18 in the defendant data, not literally, no, but effectively
19 none at all. And then, there's virtually a .16% found in
20 the defendant data that is not found in the ARCOS data.
21 Again, the overlap is 99.83%.

22 **Q.** All right. Dr. McCann, let's move to the code that
23 your office prepared to summarize these datasets. Would you
24 just generally explain the code, and the type of code, and
25 how that was used with your organization of these datasets?

1 **A.** Sure. I mentioned earlier the primary software used is
2 an open source statistical software used by the scientific
3 community called R and it's extremely useful for down -- for
4 importing very large datasets. A software like R, or SAS,
5 or SPSS is really primarily sort of a memory management
6 software package because you can't load 500 million records
7 all at one time into the memory that's in your computer.
8 So, the software ingeniously processes that data in sort of
9 bytes in packages economizing on the use of memory. That's
10 what R is doing. It's allowing you to import this enormous
11 dataset.

12 The subsequent calculations done in R could be done in
13 Excel if you could get the data into Excel. If it was 5,000
14 records instead of 500 million records, everything we do
15 after that, taking data from the *NDC Dictionary* provided by
16 the DEA, taking labeler codes provided by the FDA, taking
17 morphine milligram equivalent factors from the CDC, taking
18 NPI information from the CMS, taking Census Bureau data we
19 may talk about later, all of that could be done in Excel.
20 It's basic calculations after the data is imported into R.
21 It could be done with any sort of math or statistic package
22 or spreadsheet.

23 **Q.** Now, as far as -- you've prepared a series of summaries
24 and charts that capture the underlying data from these
25 different datasets, correct?

1 **A.** Yes.

2 **Q.** Now, did some of the code outside of R that was used to
3 perform these calculations, was that created by your office?

4 **A.** Yes, although I go back to the analogy I gave you
5 earlier of Excel. If you think about Excel, I might -- I'm
6 not someone who has -- I don't use Excel more than probably
7 any other economist uses Excel, but I would open Excel and
8 use the embedded functions like to look up a value in a
9 larger table and put it into a spreadsheet.

10 So, Excel has a lot of embedded functions that you can
11 use besides just multiplication, and division, and
12 subtraction and addition. But, in addition to that, it has
13 the ability for you to write little bits of software in
14 visual basic or some other code to create, as we did here,
15 the appendices, the summaries, the figures and tables and
16 charts.

17 So, those figures, tables and charts are created in
18 part with the software embedded in Excel and then with
19 little bits of what we call macros written in visual basic
20 or some other language that operate within the Excel
21 environment.

22 **Q.** Dr. McCann, would you explain to the Court the
23 complexity of the different types of calculations you use to
24 summarize these series of charts and graphs that we are
25 about ready to go through?

1 **A.** Well, ultimately from my perspective, it's really quite
2 simple. We started with a great big dataset. We narrowed
3 it down to the subset of that data that we were interested
4 in, shipments to dispensers primarily in Cabell County and
5 Huntington City.

6 We also were interested in average shipments to
7 pharmacies and into counties and zip codes around the
8 country, but primarily narrowing that large dataset down to
9 the data, subset of the data, that was interesting.

10 And then, after that, it's really just subtotals.
11 Again, if you're at all familiar with Excel, you can take a
12 bunch of data and sort it by some variable you're interested
13 in, maybe height, maybe age range, maybe geographic
14 location, a whole lot of things that might be -- you might
15 be able to sort or filter on and then do what we call
16 subtotals.

17 So, to give you an example perhaps, if I'm interested
18 in -- excuse me -- business revenue per month for the last
19 ten years and what I have is cash receipts every day, so a
20 subtotal would take -- would sort by date, and then it would
21 subtotal each month's sales receipts. And that's sort of
22 what we're doing with the summary figures and tables. It's
23 sorting on a drug code or sorting on a quarter, or a month,
24 or a year, sorting on a distributor, sorting on a pharmacy,
25 and then doing subtotals on dosage units, MME or base

1 weight.

2 So, ultimately, what we do is quite simple. It's

3 arithmetic. It's not -- there's nothing fancy here.

4 There's no statistical analysis. There's no R squares.

5 There's no -- there's nothing like that.

6 It's taking a subset of the data and then doing

7 subtotals on elements of that data that may be interesting

8 to the Court, may be relevant to the Court.

9 **Q.** Now, the code that you have mentioned, is it your
10 understanding that the mathematical formulas, the addition
11 and subtraction, the averages, division, has that been
12 provided to the -- to the defendants?

13 **A.** Yes. I believe I first provided it back in May of
14 2019, so two years ago, and if I may, just another -- I may
15 not have properly answered that prior question.

16 The code is really doing a couple of things. It's
17 reading in data, like the ARCOs data, the *FDA Dictionary*, a
18 couple of -- the *NDC Dictionary*. It's doing a little bit of
19 matching on the NDC code. It's appending some information
20 from the *NPI Dictionary*. And then it's doing some basic
21 arithmetic and spitting out results. That's what that code
22 is doing. We provided it -- I provided it to the plaintiffs
23 I think it's over two years ago now. And, since then, four
24 or five more times.

25 **Q.** Dr. McCann, one -- in addition, the Census information

1 that you used, would you explain how the Census information
2 was incorporated into these summaries, charts and graphs
3 that you have prepared for the Court?

4 **A.** Well, some of the summaries include per capita
5 information. So far, we've been talking about the aggregate
6 amount of pills, dosage units, weight or MME. And there are
7 some of the summaries that are expressed in terms of per
8 capita because the same weight or MME shipped into a state
9 like Florida, or Texas, or California means something
10 different when shipped into a state with a much smaller
11 population or a county with a much smaller population.
12 And so, for some of the figures and tables, we standardize
13 on population, and we refer to that as per capita.

14 **Q.** Dr. McCann, around the country, have you been deposed
15 regarding your summaries and charts that you've generated
16 here and in other cases in the opiate litigation?

17 **A.** Yes, five or six times.

18 **Q.** And in those five or six times, have there been any
19 challenges to the reliability of the kind of mathematical
20 calculations that you have used in the charts and graphs and
21 summaries today?

22 THE COURT: Just a minute, Dr. McCann.

23 Mr. Schmidt?

24 MR. MAHADY: I will defer to my colleague. Go
25 ahead, Mr. Schmidt. You beat me up.

1 MR. SCHMIDT: Yeah, I don't -- I don't think it's
2 proper questioning to ask him what he was or wasn't asked
3 about at the deposition and his construction of whether he
4 was challenged or not.

5 THE COURT: What's the purpose of this?

6 MR. MOUGEY: Just to point out, Your Honor, after
7 this code has been produced for over two years, that the
8 data has been produced over two years, that there haven't
9 been any issues regarding the reliability.

10 THE COURT: Well, I'll sustain the objection. I
11 don't think this is helpful to the Court in view of other
12 testimony.

13 MR. MOUGEY: Yes, sir. Yes, sir.

14 BY MR. MOUGEY:

15 **Q.** Dr. McCann, have you reviewed some expert reports in
16 preparation for your testimony today?

17 **A.** Yes.

18 **Q.** And is one of those expert reports incorporating and
19 using the data that you've just described and the steps that
20 you just described and their analysis?

21 **A.** Yes.

22 **Q.** And did one of the defendant's experts use or calculate
23 market share and other general summaries based on the data
24 and the steps that you just described?

25 **A.** Yes. They did similar calculations on process data

1 that I've described.

2 **Q.** And on -- based on your process data that you
3 generated, correct?

4 **A.** Yes, on my data.

5 **Q.** Yes, sir, and it actually cites your data in their
6 expert report, correct?

7 **A.** Yes.

8 **Q.** Dr. McCann, the summaries that you've generated for the
9 Court's use today, are those an accurate and complete
10 reflection of the underlying data and the steps that you
11 just walked the Court through?

12 MR. MAHADY: Objection, Your Honor, foundation.

13 We have not seen a single chart yet. Dr. McCann has not
14 testified as to what's contained in those charts. So, I'm
15 not sure how he can blanket say they are all accurate.

16 THE COURT: Well, can you fix that, Mr. Mougey?

17 MR. MOUGEY: I can, yes, sir. I mean, I'll do
18 that for each and every chart. I'm just asking a general
19 question.

20 I tell you what, I'm about ready to move into the
21 individual charts.

22 THE COURT: Let's take a break. We need to switch
23 out the court reporters and we'll be in recess for
24 15 minutes and come back about 20 until 11:00.

25 (Recess taken)

1 MR. MOUGEY: May I proceed, Your Honor?

2 May I approach, Your Honor?

3 Your Honor, to save -- I don't want to get too much
4 exercise, so I'll just put each of our successive summaries
5 and charts that I've just passed out to each of the
6 defendants and the Court. I'll be referring to those one
7 exhibit at a time. And, like I said, I didn't want to get
8 too much exercise walking around.

9 The first chart, Your Honor, that we have a summary is
10 Plaintiffs' 44711.

11 BY MR. MOUGEY:

12 Q. Dr. McCann, in preparation for your testimony
13 today, have you prepared a series of charts and
14 summaries capturing the ARCos data and the subsequent
15 datasets that you just walked the Court through?

16 A. Yes.

17 Q. And, Dr. McCann, do you have 44711 in front of you?

18 A. Yes.

19 Q. And then, Dr. McCann, you also have the monitor there
20 that captures what's on the larger screen?

21 A. Yes.

22 Q. And, so, we'll be referring to -- feel free to either
23 use the paper or the screen.

24 Dr. McCann, will you walk the Court through -- just
25 orient the Judge with how you have these slides organized

1 with the data compilations, --

2 **A.** Yes.

3 **Q.** -- just generally.

4 **A.** So I think everything that's on these slides are what I
5 had described earlier as subtotals. And any time that the
6 subtotal is across all of the ARCos data, we might refer to
7 that as nationally. And I've got the U.S. flag as an icon
8 to, to sort of quickly orient you to the national data.
9 I've got the West Virginia crest to orient you to the state
10 subtotals. And then I've got the outline of a map of Cabell
11 County and the emblem for Huntington City to orient you to
12 the Huntington City and Cabell County data.

13 **Q.** Upper left-hand corner, would you explain to the Judge
14 the legend in the upper left-hand corner and what
15 information that denotes?

16 **A.** Yes. So all of this data, as I said, is really
17 subtotals after you filter the data on particular fields.
18 And, so, I've identified the important filters in the upper
19 left-hand corner of each of these.

20 So first typically will be the, the scope. So
21 national, West Virginia, Cabell County and City of
22 Huntington, on this graphic all three of them are
23 illustrated. So all three of them are listed. In many of
24 the others we look at, it will just say Cabell County and
25 City of Huntington.

1 I've got the time period listed here, 2006 to 2014, all
2 sellers and all dispensers and all 14 drugs. So that is in
3 some sense the broadest possible capture of the data once
4 you're only focused on S transactions, the shipments that I
5 referred to earlier. So those are the five sort of key
6 filters that I applied to the data.

7 **Q.** And, Dr. McCann, would you just -- the 14 drugs are
8 mentioned -- are delineated on the left-hand side of this
9 chart?

10 **A.** Correct.

11 **Q.** And the hydrocodone and oxycodone are broken out on
12 top?

13 **A.** Yes.

14 **Q.** All right. Would you just, going from left to right on
15 just hydrocodone and oxycodone, walk the Court through the
16 total dosage units and what the percentages are?

17 **A.** Sure. So the total dosage units -- again a dosage unit
18 is only provided for the physical -- for the hard forms of
19 the drugs, but that doesn't impact hydrocodone and oxycodone
20 very much. So it's dosage units of hydrocodone and
21 oxycodone. There's 110,942,115,712 dosage units in the
22 ARCOS data provided by the Government.

23 Those two together account for 81.8 percent of the
24 dosage units for all 14 drugs. So the percent there in that
25 column, the 52.7 for hydrocodone and 29.1 for oxycodone

1 totaling, or subtotaling the 81.8 percent are percentages of
2 the dosage units across all 14 drugs and then -- nationally.

3 And then as we go -- if we filter down to a subset of
4 the government-provided data, only those shipments into West
5 Virginia, there was 1 million -- I'm sorry -- 1,197,161,809
6 dosage units shipped into West Virginia and reflected in the
7 ARCOS data between 2006 and 2014.

8 And then further over into Cabell County and the City
9 of Huntington there was 109,811,500 dosage units of
10 hydrocodone and oxycodone accounting for 85.9 percent of the
11 total dosage units of opioids shipped into Cabell and the
12 City of Huntington in the 2006-2014 time period.

13 **Q.** Now, Dr. McCann, in addition to the totals of
14 hydrocodone and oxycodone, have you also calculated a per
15 capita amount?

16 **A.** Yes.

17 **Q.** And would you walk Judge Faber through each of the per
18 capita amounts nationally, West Virginia, and here in Cabell
19 County?

20 **A.** Yes. So, again, separating the oxycodone and
21 hydrocodone from -- in the subtotals from the others, and
22 first talking about them, the average per capita shipment
23 annually across the country reflected in the government DEA
24 data is 39.9 dosage units per person of oxy and hydro.

25 In West Virginia the same data reflects an average

1 annual per capita of 72 per person.

2 And in Cabell County and the City of Huntington an
3 average annual per capita of 122 dosage units per person.

4 **Q.** Dr. McCann, I'm going to make you earn your paycheck
5 today a little bit by doing some math in your head.

6 Would you please just compare percentage wise the pills
7 or dosage units per cap between Cabell County and national
8 and West Virginia just roughly?

9 **A.** It's a little bit more than three times as much. So
10 the, the local shipments, if you will, are 300 percent of
11 the national shipments, or 200 percent more than the
12 national shipments, roughly three -- a little bit more than
13 three times as much.

14 **Q.** And then Cabell County as compared to West Virginia at
15 72.05?

16 **A.** It's about two-thirds more, a little bit more than
17 two-thirds more, about 70 percent more into Cabell County
18 and the City of Huntington per capita than into the state.

19 **Q.** Now, Dr. McCann, I'd like to go back to the legend in
20 the upper left-hand corner just to make sure that we have
21 our vernacular down today.

22 All dispensers, all sellers, would you please explain
23 to the Court what each one of those mean?

24 **A.** Sure. So the -- all dispensers captures roughly 40 of
25 the roughly 50 buyer business activities that are listed in

1 the ARCos data and in the NPI dictionary. It includes not
2 just retail and chain pharmacies, but it includes different
3 types of clinics and hospitals and, for instance, very small
4 amount to research facilities or to experts.

5 And, so, for the all dispensers, we exclude things like
6 those research facilities and the exporters that are not
7 putting drugs in, sort of my layman's way of thinking about
8 it, into the stream of commerce, into the, into the hands of
9 individuals for consumption.

10 It turns out that, that our definition of all
11 dispensers closely tracks what you would imply for
12 dispensers from the DEA Retail Drug Summary Reports because
13 they refer to shipments to dispensers. And our totals match
14 the Retail Drug Summary Reports. We think we've got the
15 right measure of dispensers.

16 In any case, almost all of that is accounted for by
17 retail and chain pharmacies. So that's the all dispensers.

18 By all sellers what I mean is all shippers of drugs to
19 those dispensers. More than 90 percent, 96, 97 percent
20 comes from distributors, not just the three distributors
21 here, but primarily from the three distributors here.

22 And there are some, two or three percent coming from
23 manufacturers directly to dispensers. And they would be
24 included in this table which is all sellers going to all
25 dispensers.

1 **Q.** All right. So it includes the 14 drugs going
2 vertically down the chart. Would you please explain to the
3 Court the per capita numbers and the totals for all 14 drugs
4 or all opiates for all sellers and all dispensers?

5 **A.** Sure. Again, reflecting dosage units, there's
6 135,651,650,530 dosage units across the 14 drugs in the
7 nine-year time period in the data produced by the
8 government.

9 There are 1,374,953,247 dosage units in that data
10 reflecting shipments into West Virginia.

11 And there's 127,902,911 dosage units reflected in that
12 data into Cabell County and the City of Huntington.

13 I'm sorry. You asked me on a per capita basis. I may
14 not have given you that.

15 On a per capita basis, the total across the 14 drugs is
16 142 dosage units per capita in the Cabell and Huntington
17 City; 82.76 into West Virginia; and 48.79 per capita
18 annually on average.

19 **Q.** All right. Dr. McCann, same concept. Would you start
20 with the upper left-hand corner of this summary and walk the
21 Court through what the different datasets are in the, in
22 this chart?

23 **A.** Yes. There's a couple of places on this chart where
24 the, the data -- the underlying data is defined. So on the
25 upper left-hand corner you'll see it says "national." So

1 this is the entire ARCOS dataset. Actually, it's something
2 a little bit different, but it's ultimately ARCOS for the
3 time period 1997 to 2009, all sellers, all buyers, oxycodone
4 and hydrocodone.

5 And the Footnote you'll see it says as source ARCOS
6 Retail Drug Summary Reports. So those are the, the, the
7 publications that I mentioned earlier that the DEA publishes
8 six times a year.

9 What I've done here is used those Retail Drug Summary
10 Reports and plotted the total MME. The Retail Drug Summary
11 Reports are reported in, in weight. And I convert that to
12 MME for oxycodone and hydrocodone separately.

13 And on this tab for oxycodone and hydrocodone together,
14 oxycodone is in blue, hydrocodone in orange.

15 **Q.** And, Dr. McCann, the difference in the Retail Drug
16 Summary Reports, which is the publicly available ARCOS and
17 the ARCOS dataset that was subpoenaed from the DEA, what is
18 the difference temporally between the two?

19 **A.** The Retail Drug Summary Reports go back at least to
20 1997 and continue to the present. There might even be a
21 first quarter of 2021 available now. I'm not sure. The
22 data produced by the DEA and pursuant to that court order
23 covered the nine-year period from 2006 to 2014.

24 **Q.** And, Dr. McCann, in the publicly available ARCOS
25 dataset, are you -- were you able to discern the specific

1 distributors that are inclusive in, in this summary chart?

2 **A.** No. It just gives a total number into each three-digit
3 state combination per quarter per drug.

4 **Q.** How about to a specific pharmacy? Were you able to
5 discern the specific pharmacy the opiate shipments through
6 the Retail Drug Summary Reports?

7 **A.** No.

8 **Q.** Now, again, I'm going to do some rough math. Would you
9 please just turn roughly, the 1997 to the peak, the increase
10 in percentages in the national Retail Drug Summary Reports?

11 **A.** Sure. The -- just very roughly, the combined MME of
12 oxycodone and hydrocodone at the beginning is on the order
13 of one billion and ends up being on the order of 11 or
14 12 billion. So it goes up by a factor of 11 or 12 -- 10,
15 11, or 12. It's up 1,000 percent.

16 **Q.** From 1997 until roughly 2009 and 2010?

17 **A.** Correct.

18 **Q.** And if we go to the end of this dataset in 2019, just
19 roughly would you be able -- would you please describe to
20 the Court date-wise or time-wise where we are now compared
21 to where we were back in 2005-2006?

22 **A.** Well, the, the shipments of oxycodone and hydrocodone
23 have dropped down significantly from their peak. They're
24 down roughly in half. And they're down to a level similar
25 to what they were in 2005, but continuing to decline. If we

1 had updated this with the most recent Retail Drug Summary
2 Reports, they continue to decline.

3 **Q.** Dr. McCann, I'll just turn to Page 5 of Plaintiffs'
4 Exhibit 44711 and the same national scope, the difference
5 between total MME and weight in milligrams. What's the
6 difference, if any, in the results?

7 **A.** It's a very similar picture. In fact, if you just
8 flash the two of them up, they're really indistinguishable.
9 They show an increase of 1,000 percent or 1,100 percent from
10 the beginning to the peak, and then a decline of about
11 50 percent thereafter in shipments of hydrocodone and
12 oxycodone measured by weight rather than by MME.

13 **Q.** Dr. McCann, were you able to take the same dataset from
14 the Retail Drug Summary Reports and compare state by state?

15 **A.** Yes.

16 **Q.** And what were your conclusions in Page 6 of your
17 summary chart?

18 **A.** Well, what I plotted here in, in gray, really all of
19 the lines, but focusing on the gray for a minute, is the,
20 the MME per capita calculated from the Retail Drug Summary
21 Reports and the Census Bureau data each year in each state.

22 And, so, the height of the bar, of the lines is MME per
23 capita. There's a separate line for each of the states.
24 And I've culled out a few of the lines that stand out for
25 their peaks in MME per capita. West Virginia I've

1 highlighted in red.

2 **Q.** Dr. McCann, did you perform a similar analysis for the
3 State of West Virginia based on the Retail Drug Summary
4 Reports?

5 **A.** Yes.

6 **Q.** And is this slide laid out with -- as far as MME
7 similar to the previous two versions we just went through?

8 **A.** Yes. You can see -- other than the scope is identified
9 up in the upper left-hand corner is West Virginia instead of
10 national. And it's got the emblem for the state. The
11 layout is otherwise identical and it shows a very similar
12 pattern.

13 **Q.** And, Dr. McCann, similar, the geographic scope, State
14 of West Virginia, but as opposed to MME, weight and
15 milligrams, similar results?

16 **A.** Yes. Again, the weight and the MME charts look
17 virtually identical when you're using oxycodone and
18 hydrocodone to illustrate the ramp-up.

19 **Q.** Dr. McCann, were you able to perform a similar analysis
20 for Cabell County and the City of Huntington?

21 **A.** Yes.

22 **Q.** Did the dataset available with the Retail Drug Summary
23 Reports match perfectly with the, with the county lines in
24 Cabell and in the City of Huntington?

25 **A.** No. As you asked me a minute ago, the Retail Drug

1 Summary Reports don't allow you to see what pharmacy, what
2 individual pharmacies in the three-digit zip code is -- are
3 receiving the drugs. And, so, you're not able to narrowly
4 pinpoint a geographic region like the city unless it's all
5 just in one three-digit zip code, which is not true
6 anywhere. But we can get pretty close.

7 **Q.** All right. Dr. McCann, did you prepare a map
8 identifying the scope of the three-digit zip codes that
9 match up with the Retail Drug Summary Reports?

10 **A.** Yes. There are really two of them, 255 and 257.

11 **Q.** And do 255 and 257 match up perfectly with the
12 geographic boundaries of the City of Huntington and Cabell
13 County?

14 **A.** No. They encompass the City of Huntington and Cabell
15 County, but they're larger.

16 **Q.** They're broader?

17 **A.** Yes.

18 **Q.** But did you calculate from the Retail Drug Summary
19 Reports the total amount of MME coming into 255 and 257 from
20 1997 until 2019?

21 **A.** Yes.

22 **Q.** And is that summary chart captured on Page 11?

23 **A.** Yes.

24 **Q.** And Page 11 is measured in MME?

25 **A.** Yes.

1 **Q.** Similar analysis to the previous slides based on the
2 Retail Drug Summary?

3 **A.** Yes, very similar -- it's identical analysis and very
4 similar results.

5 **Q.** And would you also please just roughly give Your Honor
6 a percentage of the increase from 1997 until the peak in
7 2010 or '11?

8 **A.** Yes. We can see here that it increases from
9 approximately 1,750,000 to about 17,500,000, about a factor
10 of 10. It's about 1,000 percent at the peak of what it was
11 at the beginning of this time period reflected on the Retail
12 Drug Summary Reports.

13 **Q.** Dr. McCann, did you perform a similar analysis but as
14 opposed to MME the weight and milligrams?

15 **A.** Yes.

16 **Q.** Similar results?

17 **A.** Yes, identical really.

18 **Q.** All right. Dr. McCann, would you please walk the Court
19 through how you have the data organized in, on Page 15 of
20 this summary chart?

21 **A.** Yes. This is the buyer business activities chart. It
22 lists the buyer business activities in the first column, the
23 buyer business activities that I grouped together as
24 dispensers and which match -- the output of which matches
25 the Retail Drug Summary Reports shipments to dispensers.

1 And you'll see at the top I've got first the chain and
2 retail pharmacies and a subtotal for them nationally. This
3 is in dosage units, back to dosage units, 100,535,739,835
4 dosage units to chain and retail pharmacies as defined in
5 the DEA data.

6 And then as you go from left to right, you'll see the
7 amount shipped, dosage units shipped to retail and chain
8 pharmacies as defined in the DEA data.

9 For West Virginia it's 1,114,933,273 dosage units.

10 And for Cabell County and the City of Huntington -- and
11 here we are able to identify the individual pharmacies. So
12 this isn't the 255 and 257. This is the detail physical
13 location data. 87,520,310.

14 And then there are these other buyer business
15 activities that are --

16 **Q.** Dr. McCann, can I stop you right there --

17 **A.** Sure.

18 **Q.** -- before we go to the others?

19 **A.** Sure.

20 **Q.** So we went through the, the very first slide. And
21 approximately 80 percent of the dosage units into Cabell
22 County, West Virginia, in the U.S. was oxycodone and
23 hydrocodone; correct?

24 **A.** Yes.

25 **Q.** Okay. So similarly here, roughly 80 percent in Cabell,

1 up to approximately 90 nationally, or 93 in West Virginia,
2 is for retail and chain pharmacies?

3 MR. MAHADY: Your Honor, --

4 THE COURT: Mr. Mahady.

5 MR. MAHADY: -- I think we are leading the witness
6 now. We object on those grounds.

7 THE COURT: I'll sustain the leading question, Mr.
8 Mougey.

9 MR. MOUGEY: Yes, sir.

10 THE COURT: Maybe you can rephrase it.

11 BY MR. MOUGEY:

12 Q. Would you walk the Court through just the
13 percentage of oxycodone and hydrocodone through retail
14 and chain pharmacies?

15 A. Yes. This is, this is, again, not all drugs. This is
16 just the oxycodone and the hydrocodone. And what you can
17 see is that most, almost all of the oxycodone and
18 hydrocodone is, is dispensed through chain and retail
19 pharmacies.

20 There are these other -- these are these other buyer
21 business activities, but the amount that is in, in these
22 other buyer business activities drop off pretty
23 significantly, really de minimis on a, a national level.
24 It's almost all 90.6 percent through those first two buyer
25 business activities.

1 **Q.** And if we could drill down on that just a little bit
2 deeper. You started to walk the Court through the buyer
3 business activities. Would you please do that in a little
4 more detail and how those are laid out on this summary?

5 **A.** Yes. As I said, these are the buyer business
6 activities that are identified in the ARCOS handbook and are
7 found in the ARCOS data provided by the DEA.

8 And, so, beyond the chain and retail pharmacies, which
9 is the bulk of them, there are these other categories;
10 hospital/clinic, hospital/clinic V.A., mail-order pharmacy,
11 federal pharmacy, practitioner, military clinic, central
12 fill facility, and so on.

13 The numbers get really quite small as you go down
14 through this list relative to the overall total. We've
15 primarily focused on those first two categories.

16 **Q.** All right. If Your Honor wanted to identify who the
17 distributors were looking at these charts, where would he
18 find the information about which distributors are included
19 in this specific summary on Page 15?

20 **A.** It's not in -- that information isn't in this
21 high-level summary. It is -- slightly more detailed
22 information by distributor is on some of the other graphics.

23 **Q.** So dosage units per cap just in Cabell County and West
24 Virginia compared to -- for retail and chain compared to the
25 entirety of the business activity, --

1 **A.** Well, --

2 **Q.** -- buyer business activity?

3 **A.** 79.7 percent, or 80 percent of the, of the dosage units
4 into Cabell County and the City of Huntington come from
5 those first two business activities.

6 More broadly, in the State of West Virginia
7 93.1 percent of the dosage units come from those two buyer
8 business activities.

9 **Q.** All right. ARCOS definition of retail and chain on
10 this chart or the NPI definition of retail and chain?

11 **A.** Well, they're similar. They don't overlap perfectly
12 because the NPI definition of retail and chain is a subset
13 of, of the definition used by ARCOS.

14 NPI -- the NPI dictionary separates out, as I said
15 earlier, what we've called broadly closed-door pharmacies.
16 So these are managed care facilities or extended care
17 assisted-living facilities.

18 There's seven -- I think it's seven categories, labels
19 of pharmacies that, that we identify as closed-door
20 pharmacies and separate them out from the retail and chain
21 pharmacies.

22 So a similar table to this could be drawn where the
23 retail and chain pharmacy numbers would be slightly lower,
24 slightly lower because some of, some of those dosage units
25 are now being attributed to the closed-door facilities.

1 **Q.** Dr. McCann, have you provided summary analysis for the
2 Court using the NPI definition to extract the mail-order,
3 extended care, assisted-living facilities?

4 **A.** Yes.

5 **Q.** And is that analysis captured on Page 16 of your
6 summaries in Plaintiff's Exhibit 44711?

7 **A.** Yes, that's it.

8 **Q.** All right. And where is the NPI as opposed to the
9 ARCOS definition denoted on Page Number 16?

10 **A.** Well, --

11 **Q.** At the risk of Mr. Mahady objecting, I'm going to help
12 you. It's the bottom left-hand side.

13 **A.** Yeah. Well, as I said, the NPI dictionary is used to
14 identify the closed-door pharmacies within the chain and
15 retail pharmacies identified in the ARCOS data.

16 What I was going to point out to you is you can
17 actually reconcile the numbers on this page with the
18 previous page fairly easily.

19 The -- for instance, the total under, looking at Cabell
20 County and City of Huntington, 87,946,510 is the 87,520,310
21 from the previous page for retail and chain pharmacies plus
22 the 426,200 for the mail-order pharmacies that are separated
23 out by the ARCOS data definition.

24 Then here if you, if you take the 426,910 -- sorry --
25 426,200 out of the 87,946,510, you get -- what's left is the

1 87,520,000 on the previous page.

2 So one way to look at this is to say that previous page
3 is chain and retail pharmacy totals have been refined a
4 little bit here to separate out that closed-door role.
5 That's the real difference.

6 **Q.** Thank you. And, Dr. McCann, where can Your Honor find
7 the retail and chain pharmacies without the mail-order and
8 the closed-door number?

9 **A.** It's the lower panel on this page. It's the chain and
10 retail pharmacies. That's the NPI definition which excludes
11 the closed-door pharmacies from the ARCOS definition.

12 **Q.** What impact, if any, by using the NPI definition of
13 closed-door pharmacies and the mail-order pharmacies does
14 that have on retail and chain?

15 **A.** Well, you can see that it reduces the total by about
16 seven percent. So it's a little bit more conservative
17 subset of data reflecting opioids dispensed into Cabell
18 County and Huntington City.

19 **Q.** Dr. McCann, would you please walk the Court through the
20 summary on this, on Page 17 and which of the sellers or
21 distributors it includes?

22 **A.** Yes. This layout is, is virtually identical to the
23 previous one. There's been two changes you'll see. In the
24 upper left-hand corner under the -- instead of saying all
25 sellers, it says Big 3 total. So those Big 3 being

1 identified with the icons on the right, AmerisourceBergen,
2 Cardinal Health, and McKesson.

3 So it's just taking a subset of the data, the DEA's
4 opioid data, and looking only at shipments from these three
5 entities to dispensers as we've defined them here.

6 **Q.** All right. Let's start at the top line, if you will,
7 the conclusions under retail and chain. Would you please
8 walk the Court through the comparisons between Cabell
9 County, West Virginia, and the U.S. as far as the pills per
10 cap for just oxy and hydro?

11 **A.** Sure. The -- these three distributors through the
12 retail and chain pharmacies distributed 63.48 dosage units
13 per capita per year on average into Cabell County and the
14 City of Huntington. That is not quite twice, but close to
15 twice what they distributed into retail and chain pharmacies
16 in the state. That's 37.04 per capita on average per year.

17 And nationally it is almost four times as much, 63.48
18 versus 17.08 shipments by these three distributors to retail
19 and chain pharmacies on average per capita per year.

20 **Q.** All right. Just as a percentage, Dr. McCann, between
21 the national average of 17.8 for oxy and hydro through
22 retail and chain pharmacies versus the average pills per cap
23 in Cabell County, West Virginia.

24 **A.** It's about three and two-thirds times. So it's not
25 quite four times, but it's, it's more than three and a half

1 times.

2 **Q.** So approximately 360 percent. And then in comparison
3 between the State of West Virginia for retail and chain for
4 oxy and hydro compared to Cabell County percentage wise.

5 **A.** Well, it's about 65 percent by two-thirds more per
6 capita into Cabell and the City of Huntington per capita on
7 average per year than in the state.

8 **Q.** Dr. McCann, did you perform a similar analysis using
9 the NPI definition of retail and chain versus the ARCOS
10 definition of retail and chain?

11 **A.** Yes.

12 **Q.** And would you please walk the Court through on Page 18
13 your summary and conclusions?

14 **A.** Yes. Focusing on the NPI definition of retail and
15 chain, so that would be the second line up from the bottom,
16 the annual per capita dosage unit into Huntington and Cabell
17 County from these three distributors is 57.09 dosage units
18 per capita compared to 36.19 dosage units per capita into
19 the state, and 15.66 dosage units per capita per year on
20 average nationally.

21 **Q.** All right. Dr. McCann, Page 19, similar layout to the
22 prior slides, but AmerisourceBergen. Would you please
23 orient the Court -- walk the Court through the conclusions
24 on Page 19 of Exhibit 44711?

25 **A.** Yes. AmerisourceBergen distributed 37.19 dosage units

1 per capita per year on average into Cabell County and the
2 City of Huntington; 10.32 dosage units per capita on average
3 into the state; and 4.79 into the country more broadly per
4 capita per year on average.

5 So in Cabell County and the City of Huntington not
6 quite four times as much as the state in total and about
7 eight times as much as nationally.

8 **Q.** And, Dr. McCann, which drugs, again, are included in
9 Page 18?

10 **A.** Just oxycodone and hydrocodone.

11 **Q.** Just oxy and hydro. And the numbers that you just
12 walked through, 37 per cap versus 4.79 is just retail and
13 chain?

14 **A.** Correct.

15 **Q.** And, Dr. McCann, did you perform a similar analysis
16 using the NPI definition of retail and chain that you
17 previously walked through?

18 **A.** Yes.

19 **Q.** And what impact, if any, does that have on the
20 AmerisourceBergen analysis?

21 **A.** Well, it reduces the numbers a little bit because
22 you're taking the mail-order pharmacies. But, again,
23 reading across the second row up from the bottom, using the
24 NPI dictionary definition of retail and chain pharmacy,
25 AmerisourceBergen shipped 31.83 dosage units per capita per

1 year on average into Cabell County and the City of
2 Huntington; 9.97, 10 dosage units per capita on average into
3 the state per year; and 4.2 per capita per year nationally.

4 So the ratios are the same in Cabell County and the
5 City of Huntington. Using the NPI dictionary, it's 3.2
6 times as much as the state. And the state is two and a half
7 times as much as the country, or from Cabell and the City of
8 Huntington roughly eight times as much as AmerisourceBergen
9 shipped to chain and retail pharmacies defined the same way
10 nationally.

11 **Q.** Dr. McCann, the time period for AmerisourceBergen on
12 this next summary on Page 21, start on the right-hand side
13 and walk the Court through the temporal scope of
14 AmerisourceBergen's dataset.

15 **A.** Yes. We have -- we had AmerisourceBergen and the other
16 distributors' data primarily for the 2006 to 2014 period
17 nationally, maybe only for that time period nationally from
18 the data that the government produced to us.

19 Then for the State of West Virginia, we have the
20 government-produced data supplemented with data that the
21 defendants produced in discovery here. And it covers a
22 broader time period. It covers June of 2002 to December of
23 2018. Those are the numbers in the middle column.

24 And, similarly, for Cabell County and the City of
25 Huntington, we have data including the defendants' shipments

1 produced in discovery covering that same time period for
2 Cabell County and the City of Huntington.

3 **Q.** Now, Dr. McCann, are the summary of the total dosage
4 units into Cabell County, City of Huntington, West Virginia,
5 and the U.S., is that using the ARCos definition of retail
6 and chain or is it using the NPI or the narrower definition?

7 **A.** This is using the NPI definition.

8 **Q.** So these, these numbers that you have, or these
9 summaries that you have on Page 21 exclude mail-order and
10 closed-door?

11 **A.** Yes.

12 **Q.** Would you please walk the Court through the total
13 shipment of just hydro and oxy into the narrower definition
14 of retail and chain pharmacies in Cabell County?

15 **A.** In Cabell County during this time period that we have
16 government-produced data and the data produced in discovery,
17 AmerisourceBergen shipped 23,165,410 dosage units of
18 hydrocodone and 13,071,260 dosage units of oxycodone for a
19 total of 36,236,670 dosage units.

20 **Q.** And into the State of West Virginia, Dr. McCann?

21 **A.** The total is 235,003,735.

22 **Q.** And into the U.S.?

23 **A.** 11,737,678,565.

24 **Q.** All right. Dr. McCann, I'm going to ask you to kind of
25 put a pen in this spot and we're going to come back to it as

1 we walk through each of the other defendants.

2 Have you performed a similar analysis that we just
3 walked through on AmerisourceBergen with Cardinal?

4 **A.** Yes.

5 **Q.** And would you please walk the Court through Page 22 of
6 Exhibit 44711 on the Cardinal analysis?

7 **A.** Yes. Similar to the first AmerisourceBergen slide we
8 looked at, this is oxycodone only, 2006 to 2014 time period,
9 Cardinal Health shipments to all dispensers using the ARCos
10 definition of retail and chain pharmacies.

11 So doing that, nationally Cardinal Health shipped
12 16,344,839,420 dosage units nationally to dispensers.
13 91.7 percent of that, or almost 15 billion dosage units,
14 went to retail and chain pharmacies.

15 As we move to the right, Cardinal shipped 277,148,465
16 dosage units to all dispensers in West Virginia.
17 266,674,400, or 96.2 percent of those dosage units of
18 oxycodone and hydrocodone went to retail and chain
19 pharmacies.

20 And then, finally, in Cabell County and the City of
21 Huntington, Cardinal Health shipped 18,746,520 dosage units
22 to all dispensers. Virtually all of that, 98.1 percent,
23 went to retail and chain pharmacies.

24 **Q.** And as a percentage, Dr. McCann, would you please
25 compare the dosage units per cap of oxy and hydro through

1 retail and chain pharmacies to Cabell County for Cardinal?

2 **A.** Yes. The retail and chain pharmacy per cap number is
3 20.45 per capita on average per year. And that compares to
4 16.05 nationally -- I'm sorry -- yeah, in the state and 5.39
5 nationally.

6 So it's not quite four times the national per capita
7 number, but close; and about 25 percent, a little bit more
8 than 25 percent more than the state per capita number.

9 **Q.** Dr. McCann, did you perform a similar analysis using
10 the NPI narrower definition of retail and chain for
11 Cardinal?

12 **A.** Yes.

13 **Q.** And what are the summaries included on Page 23 for
14 Cardinal Health using NPI?

15 **A.** Well, the numbers are only very slightly lower. And
16 you'll see that if we look across the second row up from the
17 bottom. The annual per capita dosage units using the NPI
18 dictionary definition is 20.25 instead of 20.45, so
19 trivially different really, 20.25.

20 And then as we go from right back across left, in West
21 Virginia the average using NPI dictionary definition is
22 15.72 and nationally is 5.15.

23 So the relative ratios stay the same, but the Cabell
24 County and Huntington per capita number from Cardinal Health
25 is not quite four but almost four times the national

1 average, a little bit more than 25 percent more than the
2 state average.

3 **Q.** Similar to AmerisourceBergen, Dr. McCann, did you also
4 calculate the total number of oxycodone and hydrocodone into
5 Cabell and West Virginia using the entirety of the Cardinal
6 dataset?

7 **A.** Yes.

8 **Q.** And are those numbers a calculation summarized on Page
9 24 of Plaintiff's Exhibit 44711?

10 **A.** Yes.

11 **Q.** And, Dr. McCann, if we could start from the right-hand
12 side, would you please explain to the Court the temporal
13 scope of the dataset for Cardinal?

14 **A.** Cardinal produced shipment data in discovery going back
15 to 1996 and up through May of 2018. So it covers, it covers
16 10 years prior to the ARCOS time period, and it covers a
17 year and a half approximately after the ARCOS time period.

18 **Q.** And, so, is the difference in the West Virginia and the
19 Cabell are the entirety of the defendant set as opposed to
20 the national dataset?

21 **A.** Correct. We don't have the defendant transaction data
22 nationally which in this case for Cabell County -- well, for
23 the State of West Virginia.

24 **Q.** Dr. McCann, how many oxycodone and hydrocodone did
25 Cardinal ship into Cabell County through the narrower

1 definition of retail and chain pharmacies?

2 **A.** 37,277,955 dosage units.

3 **Q.** And for the entirety of the State of West Virginia?

4 **A.** 467,010,745.

5 **Q.** And for the U.S. in total?

6 **A.** 14,306,300,666 dosage units.

7 **Q.** Dr. McCann, turning to Page 25, have you -- similar to
8 the prior two slides, have you summarized the McKesson buyer
9 business activity for oxycodone and hydrocodone?

10 **A.** Yes.

11 **Q.** And would you please walk the Court through the summary
12 of your conclusions on Page 25?

13 **A.** Starting with Cabell County and the City of Huntington,
14 McKesson shipped 23,153,710 dosage units into Cabell County
15 and the City of Huntington; 5,247,160, or 22.7 percent of
16 that went to chain and retail pharmacies.

17 And then as we go from right to left, McKesson shipped
18 226,549 -- I'm sorry -- 226,549,470 dosage units into the
19 state. 78.2 percent of that, or 177,123,650 dosage units
20 went to retail and chain pharmacies.

21 And then nationally McKesson shipped 23,420,268,880
22 dosage units of oxy and hydro, 81.9 percent, or
23 19,179,241,470 of which went to chain and retail pharmacies.

24 **Q.** Dr. McCann, in the McKesson analysis, would you please
25 point out the, the V.A. clinic and the amount of dosage

1 units going to the V.A. clinic under the buyer business
2 activity?

3 **A.** Yes. This is the first instance where we see a
4 significant amount going to anything but retail and chain
5 pharmacies. And it's McKesson's shipments of oxycodone and
6 hydrocodone to the V.A. clinic. You can see it's the row
7 that's directly below the shaded beige area three rows down.

8 And it's -- for Cabell County and the City of
9 Huntington it's 17,623,110 dosage units, or 76.1 percent of
10 the total that McKesson shipped into Cabell County and the
11 City of Huntington.

12 **Q.** Dr. McCann, have you performed the same analysis for
13 McKesson using the NPI definition?

14 **A.** Yes.

15 **Q.** And does the NPI definition materially impact the
16 analysis for McKesson?

17 **A.** No, it does not. The ratio stays similar. You can see
18 using the NPI definition there's 4,499,560 dosage units
19 compared to 5,247,000 dosage units using the ARCos
20 definition shipped to retail and chain pharmacies in Cabell
21 County and the City of Huntington. That works out to five
22 dosage units per capita.

23 **Q.** Dr. McKesson, have you also performed a similar
24 analysis with McKesson in covering -- encompassing the
25 entirety of the dataset produced by the defendants in

1 addition to the DEA dataset?

2 **A.** Yes.

3 **Q.** Would you start from the right-hand side and identify
4 for the Court the temporal scope and then the total number
5 of hydro and oxys?

6 **A.** Yes. We received defendant transaction data in
7 discovery from McKesson starting in October of 2004. So
8 contrasted with the two earlier ones we looked at, Cardinal
9 went back to 1997 and AmerisourceBergen went to 2002. The
10 McKesson data starts in 2004 and runs through the end of
11 2018.

12 Across that time period, McKesson shipped 7,775,000
13 dosage units to retail and chain pharmacies using the NPI
14 dictionary.

15 In the state over that same time period, they shipped
16 278,634,720 dosage units.

17 And then the national number is the shorter ARCos time
18 period from the DEA, 17,504,084,910 dosage units.

19 **Q.** All right. Dr. McCann, I'm going to take Slide 27 with
20 the McKesson numbers and I would like you to flip back to
21 these identical slides for Cardinal and for
22 AmerisourceBergen.

23 And what I'd like to do is have you calculate for the
24 Court the combination of McKesson, Cardinal, and
25 AmerisourceBergen. And we're going to put this up on the

1 deck. Okay, sir?

2 MR. MOUGEY: Your Honor, may I approach to give
3 the witness -- I'll give you a calculator for this.

4 THE WITNESS: Thank you.

5 BY MR. MOUGEY:

6 **Q.** So, Dr. McCann, if I could direct your attention
7 to -- let's start on -- stay on the electronic board
8 here on this page, but I think you can turn back on your
9 paper copy to 21. Okay, sir?

10 **A.** Yes.

11 **Q.** And if you would, please, start with AmerisourceBergen
12 beginning with the total shipments of U.S. and then give
13 those across the bottom.

14 **A.** 11,737,678,565.

15 **Q.** All right. For the State of West Virginia?

16 **A.** 235,003,735.

17 **Q.** And for Cabell County?

18 **A.** 36,236,670.

19 **Q.** All right. Do the same for Cardinal.

20 **A.** Nationally it's 14,306,300,666.

21 MS. SALGADO: Your Honor, Suzanne Salgado for
22 Cardinal Health.

23 We object to the comparison of Cardinal Health data
24 that goes -- that precedes 2006, the ARCOS data limited to
25 2006 to 2014. And as Dr. McCann has testified, Cardinal

1 produced data going back further than any other defendant
2 and it would be misleading to compare Cardinal's data to
3 that of other defendants before 2006.

4 THE COURT: Yeah. Why are the different dates up
5 there, Mr. Mougey?

6 MR. MOUGEY: The different dates are because
7 they're different datasets, Your Honor. And each -- so the
8 U.S. -- so this is -- let's just start with McKesson.

9 '06 to '14 is the entirety of the dataset that we've
10 seen from the United States Government through the DEA. And
11 then each of the defendants provided datasets that they had
12 stored. Cardinal has from '96 on. AmerisourceBergen has
13 from '04. And McKesson has from '02.

14 So all I'm doing here, Your Honor, is simple math, just
15 adding up the total. We have walked through and identified
16 the different time periods.

17 THE COURT: I think this goes to the weight rather
18 than the admissibility and you'll have an opportunity to
19 cross-examine on it. So I'm going to overrule the
20 objection, but I understand your point.

21 MS. SALGADO: Thank you.

22 BY MR. MOUGEY:

23 Q. Dr. McCann, the Cardinal for West Virginia?

24 A. 467,010,745.

25 Q. And for Cabell?

1 **A.** 37,277,955.

2 Q. All right, Dr. McCann, what I'd like for you to do with
3 the calculator I've just given to you, if you would please
4 total the number of dosage units for oxycodone and
5 hydrocodone for Cabell County based on the datasets provided
6 in discovery.

A. For Cabell County and the City of Huntington it's
81,239,625.

9 Q. Same for the State of West Virginia.

10 **A.** 980, 649, 200.

11 | Q. And the same for the U.S.

12 **A.** The calculator won't take numbers that large. I'm
13 sorry.

14 Q. That's all right. Just add the 1714 and the 11 for a
15 round number.

16 **A.** Sure. It's 43 and a half billion, 43,500,000,000. So
17 that's 43,500,000,000, yes. You still need three more zeros
18 there.

19 Q. 43,500,000,000 for the entirety of the U.S. for
20 oxycodone and Oxycontin for the Big 3 based on the number of
21 pills we were able to track; 980,000,000 dosage units for
22 oxycodone and hydrocodone based on the pills we were able to
23 track for the State of West Virginia --

24 MR. MAHADY: Your Honor, Mr. Mougey is now
25 testifying. If he has a question for the witness, I think

1 he should ask the question.

2 MR. MOUGEY: I'm just asking him to confirm --

3 THE COURT: Well, I think you probably are,

4 Mr. Mougey, so I'll sustain the objection. Just ask him
5 questions.

6 BY MR. MOUGEY:

7 Q. Dr. McCann, would you please -- the totals for the
8 U.S., West Virginia, and Cabell County?

9 A. Yes. The three distributors distributed approximately
10 43 billion, 43 and a half billion dosage units of oxycodone
11 and hydrocodone in the 2006-2014 time period across the U.S.

12 And in the state for the data that I have, they
13 distributed a total of 980,649,200 dosage units.

14 And within Cabell County and the City of Huntington,
15 again for the data that I have, they distributed 81,239,625
16 dosage units of oxycodone and hydrocodone.

17 Q. Thank you, Dr. McCann.

18 Page 28. Would you please explain to the Court the
19 data you've compiled and summarized on Page 28 of
20 Plaintiffs' Exhibit 44711?

21 A. Yes. The ARCCOS data, DEA registrant numbers that I
22 referred to earlier identify a physical location. And, so,
23 they identify, in the case of these three distributors, a
24 distribution facility.

25 And, so, each of them have a large number of

1 distribution facilities around the country. And in case it
2 was of interest, I checked the dosage units coming into
3 Cabell County and the City of Huntington to see whether they
4 were coming from multiple distribution centers, all of them
5 identified with distinct DEA registrant numbers, but owned
6 by AmerisourceBergen, McKesson, and Cardinal Health.

7 What I found is that effectively all of the shipments
8 of oxycodone and hydrocodone coming into Cabell County and
9 the City of Huntington came from a single distribution
10 center for each of these three distributors.

11 It's not as if a quarter came from each of four
12 different centers for each of these three distributors. 99,
13 98, 99.8 percent, some very high number percentage comes
14 from a single distribution center for each distributor.

15 **Q.** Dr. McCann, if you would please turn to Page 29 and
16 explain to the Court what you've summarized through these
17 charts.

18 **A.** Yes. So we've been talking primarily about the three
19 big distributors, AmerisourceBergen, Cardinal, and McKesson.
20 Sometimes I've discussed also all distributors really in --
21 sometimes referred to as all sellers, shippers into
22 dispensers.

23 And, so, on this chart what I've done is I've included
24 a line graph showing the per capita shipments by distributor
25 into Cabell County and the City of Huntington for those

1 three big distributors that we've been focused on in my
2 discussion this morning, but also adding to that other
3 distributors, smaller distributors -- well, they turn out
4 largely to be smaller distributors.

5 But you can see I've got AmerisourceBergen, Cardinal
6 Health, and McKesson colored. And I've got the other
7 distributors with more than a one percent market share of
8 oxycodone and hydrocodone shipped to retail and chain
9 pharmacies using the NPI definition illustrated here as
10 well.

11 **Q.** Dr. McCann, this is the last two slides of this
12 exhibit. Would you please explain to the Court -- I want to
13 focus predominantly on the market share which are both in
14 this, in this table that summarizes the data.

15 Would you please walk the Court through what you've,
16 what you've included in this table.

17 **A.** Yes. This is another way of presenting, in some sense,
18 the data that's on the previous graphic that we just looked
19 at. It's focused on retail and chain pharmacies using the
20 NPI definition. It's only oxycodone and hydrocodone.

21 It includes the Big 3 distributors, AmerisourceBergen,
22 Cardinal Health, and McKesson. But it also includes other
23 sellers, primarily distributors.

24 So across the top, the first panel of data is oxycodone
25 and hydrocodone together; and then next to the right,

1 oxycodone alone; and further to the right, hydrocodone alone
2 for the, what we call the ARCOS time period, 2006 to 2014.

3 And then in the middle panel we have additional data
4 provided by the defendants. That's added to the ARCOS time
5 period in the bottom panel to get the 2006 to 2018 time
6 period.

7 **Q.** Dr. McCann, do we have, or do you have the, any
8 datasets from any of the distributors other than the Big 3
9 outside of the ARCOS period, 2006 to 2014, in the State of
10 West Virginia?

11 **A.** Not that I'm aware of.

12 **Q.** Dr. McCann, I'd like to just, if you would, please,
13 just walk the, walk the Court through the oxycodone market
14 shares from 2006 to 2014 for the Big 3 for just oxy.

15 **A.** Yes. Looking at the middle of the upper panel, which
16 is the oxycodone section, you can see that the Big 3
17 distributors distributed 89 percent of the dosage units into
18 Cabell and the City of Huntington.

19 So even though there are other distributors
20 distributing, 89 percent of the oxycodone was coming from
21 these three distributors.

22 Almost as much nationally -- I'm sorry, statewide.
23 81 percent of the oxycodone comes from these three
24 distributors, and nationally 69 percent does. Effectively,
25 90 percent of the oxycodone going into Cabell County is

1 coming from these three distributors.

2 **Q.** And, Dr. McCann, would you please delineate between the
3 Big 3 between McKesson, Cardinal, and AmerisourceBergen for
4 Cabell County for the market share of just oxycodone?

5 **A.** Yes. Of that 89 percent, it is very nearly equally
6 split between AmerisourceBergen and Cardinal Health with
7 40 percent for Cardinal Health, 38 percent -- I'm sorry --
8 40 percent for AmerisourceBergen and 38 percent for Cardinal
9 Health. McKesson has 11 percent. So McKesson is
10 11 percent. AmerisourceBergen and Cardinal Health split
11 almost 80 percent.

12 **Q.** All right. The State of West Virginia, would you
13 please delineate between the three distributors here today?

14 **A.** Yes. In the state, AmerisourceBergen is 18 percent of
15 the distribution of oxycodone. Cardinal Health is
16 38 percent of the distribution of oxycodone. And McKesson
17 is 25 percent.

18 **Q.** Dr. McCann, the last page in Exhibit, I think it's
19 Exhibit 44711, please just explain to the Court what you
20 have included in this table.

21 **A.** It's really the same information on the previous table
22 only expressed per capita. So the previous table was total
23 dosage units. This is per capita on average per year. And
24 it shows the, the per capita amount focusing, again, on
25 oxycodone in the center of the upper panel, the 2006 to 2014

1 period.

2 Across all sellers, 28.84 dosage units per capita was
3 shipped into Cabell County and the City of Huntington per
4 year on average. The Big 3 shipped 25.67, or 89 percent of
5 that per capita number.

6 And then the break-out is, as I, as I suggested
7 earlier, approximately 40 percent AmerisourceBergen;
8 38 percent Cardinal Health; and 11 percent, McKesson.

9 **Q.** Dr. McCann, the summaries that we've just reviewed in
10 Plaintiffs' Exhibit 4471, are those an accurate and complete
11 depiction of the retail and chain oxy and hydro calculations
12 that you have seen from the DEA ARCOS dataset and the
13 defendants' transactional data?

14 **A.** Yes, it's absolutely accurate. It's complete in the
15 sense that for these -- for instance, these two drugs and
16 for the other filters that I put on the data to give you a
17 sense of the dataset, it's complete.

18 The actual complete set of summaries for all of the
19 data runs to thousands of pages. But I think that this is
20 an informative set of summaries, especially for oxycodone
21 and hydrocodone for these three distributors.

22 MR. MOUGEY: Your Honor, plaintiffs move Exhibit
23 44711 into evidence.

24 THE COURT: Mr. Mahady.

25 MR. MAHADY: Your Honor, this is the issue that we

1 flagged in the beginning of today.

2 What we just spent the last hour going through is a
3 demonstrative that assisted Dr. McCann in his testimony here
4 today.

5 At the outset of his testimony, he's describing what he
6 did. He said that when he worked with the ARCos data, he
7 made certain decisions relating to relevancy and
8 supplementation.

9 As to supplementation, he said that he supplemented the
10 ARCos data to further his analysis with the defendants'
11 transactional data.

12 He also said he further supplemented the data with
13 information from the CDC, MME, information from CMS -- that
14 was the NPI you heard him talk about -- drug labels from the
15 FDA, and census data from the Department and Bureau of
16 Census. So he has supplemented the ARCos data with various
17 datasets.

18 He also testified as to relevancy. He said that he
19 made determinations about what he found interesting and
20 where they wanted to focus. And ultimately what he
21 displayed was a subset of the ARCos data.

22 All of that takes us squarely outside of Rule 1006.
23 And the Fourth Circuit case law on this very issue is very
24 much in the defendants' favor.

25 In 2019 the Fourth Circuit in describing a Rule 1006

1 summary, what it is and what it is not, said essentially
2 Rule 1006 is a, quote, surrogate for underlying voluminous
3 records.

4 It went on to say that it must be an objectively
5 accurate summarization of the underlying documents, not a
6 skewed selection of some of the documents to further the
7 proponent's theory of the case.

8 As we said at the outset, the defendants do not object
9 to Mr. -- Dr. McCann using demonstratives to assist in his
10 testimony. And that is why we largely sat here quietly as
11 he testified.

12 But this is a presentation of his expert report. It is
13 not evidence and it's not admissible.

14 So for that basis, we object. I don't know if my
15 co-defendants have anything to add.

16 Your Honor, I would just note that if Your Honor is
17 seriously considering admitting this into evidence, we would
18 like an opportunity to examine Dr. McCann, look at his
19 methodologies, and we also would be happy to submit a trial
20 brief on this very issue.

21 MR. SCHMIDT: Your Honor, just briefly, Paul
22 Schmidt from McKesson. We join in that objection. This is
23 classic demonstrative evidence. Plaintiffs have properly
24 been able to read in information from Dr. McCann's analyses.
25 We have not objected to that reading in of what they

1 consider to be core points from his, from his various
2 charts.

3 But to combine different data sources through analyses
4 he's performed and judgments he's made about those data
5 sources into, into evidence is improper under Rule 1006.
6 And, so, it's okay as a demonstrative. It's not evidence.

7 MS. SALGADO: Your Honor, --

8 THE COURT: Ms. Salgado.

9 MS. SALGADO: Thank you.

10 Just one additional illustration. Mr. -- or excuse me.
11 Dr. McCann has said a number of times that the number of
12 corrections and exclusions were small as a percentage.

13 But according to his Appendix 2, Table 41, he excluded
14 more than 61 million transactions totaling more than
15 one trillion grams of weight of prescription opioids. And
16 his erroneous transactions total over 562,000 transactions.

17 So the fact that these are a small percentage of the
18 total doesn't change the fact that when even referencing the
19 ARCOS data what he himself is looking at is processed ARCOS
20 data that is different.

21 And then for all the reasons stated by my colleagues,
22 we believe that there are many other things outside of ARCOS
23 that makes this not a 1006 summary.

24 THE COURT: Mr. Mougey, shouldn't I reserve my
25 ruling on this at least until after the defendants have an

1 opportunity to cross-examine the witness?

2 MR. MOUGEY: I'm more than okay with that, Your
3 Honor. And, quite frankly, I'd welcome the break at this
4 point to --

5 THE COURT: Well, it's high noon, or thereabouts.
6 So this is an appropriate time to be in recess and we'll
7 come back at 2:00.

8 MR. MOUGEY: Your Honor, before we go off, let me
9 make sure I understand. When you asked for the -- point out
10 cross-examination, I'm assuming I'm going to finish my --
11 the rest of my direct of Dr. McCann.

12 THE COURT: Yeah, I think it would be appropriate
13 for him to finish his direct of this witness.

14 MR. MAHADY: Absolutely, Your Honor.

15 THE COURT: All right.

16 MR. MAHADY: Do I have an option?

17 MR. MOUGEY: Thank you, Your Honor.

18 THE COURT: Well, I wanted to hear what you had to
19 say.

20 All right. Come back at 2:00.

21 (Recess taken at 12:04 p.m.)

22 THE COURT: Mr. Farrell?

23 MR. FARRELL: Thank you, Your Honor. Real
24 briefly, to the old adage of no good deed goes unpunished,
25 we have a little bit of a disagreement regarding the joint

1 trial exhibit stipulation and it comes down to disclosing
2 the documents 7:00 p.m. the night before you call an adverse
3 witness.

4 So, if Your Honor recalls, we submitted the joint trial
5 exhibit stipulation on September 24th, 2020 -- I'm sorry.
6 Strike that. On September 21st, 2020. And it's Document
7 ECF 999 and Exhibit A attached the stipulation and there was
8 a dispute on Footnote 6 and, in general, the plaintiffs did
9 not think that it was fair or opportune, more like, for us
10 to have to disclose the night before we call an adverse
11 witness the documents we intend to use for cross.

12 So, for instance, theoretically, tomorrow would be Mr.
13 Chris Zimmerman, Senior Vice President of AmerisourceBergen.
14 The defendants would like us to disclose tonight the
15 documents we intend to use to cross him. I don't
16 particularly want to.

17 That being said, they also intend to, when they take
18 over the witness, to present his testimony in toto outside
19 the scope of direct so that the witness doesn't have to be
20 called twice. And so, I think it's fair that they also have
21 to disclose tonight by 7:00 p.m. the documents they intend
22 to use in his direct. So, if it were up to me, I would
23 eliminate the requirement to use cross examination materials
24 the night before, but it seems to me what's good for the
25 goose is good for the gander.

1 MR. NICHOLAS: Your Honor, I didn't realize this
2 was going to come up just now, but I think I can respond.
3 The stipulation says that the sponsoring -- the person --
4 the sponsoring attorney, the person who is sponsoring the
5 witness, has to disclose exhibits the night before. Mr.
6 Farrell is the one who is choosing to call our witnesses on
7 cross, as of cross. That's number one.

8 Number two, I think the stipulation says -- I think the
9 Court has already addressed the issue of our turning -- of
10 his having to turn over documents for the adverse witness.
11 I think there's a footnote in the stip that says that.

12 I think what he's really asking is that we turn over
13 documents tonight that we know we're going to use tomorrow
14 and I can't know that yet. I haven't heard his examination.
15 I mean and, of course, if I do turn over documents that I
16 think I might use, it will affect his -- it will affect how
17 he prepares his cross. So I will be arming him for his
18 cross before I get to do my direct, to the extent I'm even
19 directing. I'm not sure I can differentiate direct from
20 cross, you know, from responding to the cross. So, I think
21 what he's asking for is unfair, and I oppose it.

22 THE COURT: What's your suggestion for how we do
23 this since he's calling the witness as a -- well, I assume
24 he's going to be adverse. We don't know whether he's
25 adverse or not until he testifies.

1 MR. NICHOLAS: Well, he's calling him. He has to
2 give me his exhibits tonight at 7:00, as with any other
3 witness.

4 THE COURT: And you don't feel like it's fair for
5 you to have to give him yours because you don't know what
6 they're going to be yet, right?

7 MR. NICHOLAS: That is correct and for the
8 additional reason that if I give him my documents tonight,
9 it will change what he does with his examination.

10 THE COURT: Mr. Farrell, I'm going to go with Mr.
11 Nicholas on this.

12 MR. FARRELL: My only rebuttal, Judge, is that
13 this isn't a third party. It's his witness. It's
14 AmerisourceBergen's Senior Vice President. It's a party.
15 And so, if he intends to not disclose the documents that
16 he's going to use in direct, we reserve the right to object
17 to the cross examination of our adverse witness outside the
18 scope of our examination.

19 THE COURT: Well, I'll deal with that when it
20 comes up, Mr. Farrell.

21 MR. NICHOLAS: I mean, I -- part of the goal here,
22 I think, is not to have to bring people back twice just for
23 the convenience of the Court. You know, it's for all of
24 those obvious reasons.

25 So, yes, I'm going to do an examination, but I don't

1 know what the examination is yet. I have to hear his --

2 THE COURT: Well, I think he's right, Mr. Farrell,
3 so I'm not going to make him make those -- make them make
4 those disclosures.

5 MR. NICHOLAS: Thank you, Your Honor.

6 THE COURT: All right. Mr. Mougey, did I get your
7 name right that time?

8 MR. MOUGEY: Yes, sir. I answer to Mougey or
9 Mougey. Mougey it is.

10 THE COURT: Mougey.

11 MR. MOUGEY: Are you ready, Your Honor?

12 THE COURT: Yes. You may proceed.

13 MR. MOUGEY: Thank you, Your Honor. Plaintiffs --

14 THE COURT: Mr. McCann -- or, Dr. McCann, we need
15 you up here.

16 Of course, you're still under oath, Dr. McCann, as you
17 well know.

18 THE WITNESS: Yes. Thank you.

19 BY MR. MOUGEY:

20 Q. Good afternoon, Dr. McCann.

21 A. Good afternoon.

22 Q. Dr. McCann, if you would please, to the extent you're
23 using the documents in front of you, Plaintiffs' Exhibit
24 43225.

25 A. Yes.

1 Q. Dr. McCann, let's just start with the series of the
2 following summary charts and just explain to the Court how
3 these are laid out and what they contain.

4 MR. MAHADY: Your Honor?

5 THE COURT: Yes?

6 MR. MAHADY: If I may, before we get too far here
7 on this exhibit, I do want to note that on the right side of
8 this exhibit are a number of pharmacies outside of City of
9 Huntington, Cabell County as the exhibits -- or
10 demonstrative itself notes. Many of these pharmacies are a
11 hundred miles away. We are --

12 THE COURT: One is in Marshall County here. Go
13 ahead. I'm sorry.

14 MR. MAHADY: It's okay. You would know better
15 than I would, but some of them are at least over a hundred
16 miles away, but the plaintiffs have not established any
17 demonstrable nexus between these pharmacies and the City of
18 Huntington, Cabell County. So, to the extent Mr. Mougey is
19 going to question the witness on these pharmacies, we
20 object.

21 MS. SALGADO: Your Honor, Suzanne Salgado for
22 Cardinal Health. Just to note our objection, there are
23 similar charts for each of the defendants. So, while we're
24 discussing this one chart, I just want to lodge our
25 objection, as well.

1 In these cases, the pharmacies are not only outside of
2 Cabell and Huntington, but they're in other counties that
3 have separately sued these very defendants in other pending
4 litigations. So, there's not only a lack of demonstrable
5 nexus, but these are subject to discovery in other cases.

6 And also, speaking of discovery, plaintiffs' discovery
7 requests in this case did not seek diligence files or other
8 documents related to these customers outside of Cabell and
9 Huntington, nor did defendants produce diligence files about
10 these. So, to the extent we're going to be fighting about
11 pharmacies outside of the jurisdiction without a
12 demonstrable nexus, we're also unable to meaningfully
13 discuss these pharmacies and put them in context without the
14 necessary diligence files that were not requested or
15 produced in this case.

16 THE COURT: How are these other pharmacies
17 relevant, Mr. Mougey?

18 MR. MOUGEY: Your Honor, what we would ask is that
19 under 104(b), Mr. Farrell and other attorneys from our team
20 are going to take Your Honor through a couple of kind of
21 macro-level issues with some of these pharmacies. They are
22 all geographically tied to or close to Cabell County.
23 You've already made the ruling, Your Honor, that West
24 Virginia was relevant.

25 THE COURT: Well, Marshall County is not -- it's

1 almost in another state, Mr. Mougey. It's not in proximity
2 to Cabell County at all.

3 MR. MOUGEY: And, Your Honor, what I would
4 appreciate is under 104(b), allow our team to go through the
5 documents and put those in front of you to tie these to
6 exactly with we're trying to do here. I think we've already
7 spent more time going through how I wanted to touch on these
8 pharmacies and get this evidence in.

9 We've all -- we all understand what your ruling is,
10 Judge. We all understand what the causal nexus is. And we
11 will tie those together. And I would just simply ask that
12 you allow us to do that through the defendants' own
13 documents that our team of lawyers are going to put in.

14 THE COURT: Well, Mr. Mahady, you know, we don't
15 have a jury here and shouldn't I allow him to do this and
16 then disregard the part that you don't like if I think it's
17 not relevant?

18 MR. MAHADY: Your Honor, I do think the plaintiffs
19 are putting the cart before the horse. They decided to call
20 Dr. McCann the first day of Week 2. They knew that it was
21 their burden to establish demonstrable nexus and I do think
22 it's similar to a slippery slope if we start letting, you
23 know, evidence and figures coming in about pharmacies that
24 they have not established and met their burden with.

25 MR. MOUGEY: Your Honor, that's exactly why 104(b)

1 exists, because if we did it the other way and we put the
2 conduct evidence first and then we wanted to talk about the
3 specific numbers of the pharmacy, Mr. Mahady would be
4 arguing that we're putting the cart before the horse and
5 we're asking witnesses from the defendants about numbers
6 from specific pharmacies. So, either way, it's a catch-22
7 and that's exactly why 104(b) exists.

8 Your Honor, this is simply another summary chart that I
9 intended to spend about 10 or 15 minutes on so that Your
10 Honor would have the numbers in front of him.

11 THE COURT: And you say this other stuff comes in
12 under 404(b) (sic)?

13 MR. MOUGEY: Under 104(b), under conditional
14 relevance. Your Honor, all I'll trying to do -- you hit the
15 nail on the head, Judge, which is to the extent that I find,
16 you find, that these are relevant and deserve weight, you
17 have the numbers in front of you. To the extent that we
18 don't connect the dots under 104(b), then you disregard.
19 That's what's great about having a bench trial, as opposed
20 to a jury. There is no gatekeeper function. You can assign
21 whatever weight that you think is important, Judge, after
22 you see the documents because, quite frankly, whichever way
23 we did this, conduct first, numbers second; numbers first,
24 conduct second, you have the same issue.

25 THE COURT: Ms. Salgado would like to say

1 something here.

2 MS. SALGADO: Thank you, Your Honor. A couple of
3 notes. Again, we just reiterate our issue that, regardless
4 of whether this comes in, you know, if this were to be
5 admitted now or the judge looks at it later, we just don't
6 have the evidence in this case to be able to respond to
7 these numbers which stand alone. There's no -- there's no
8 distribution of non-controlled substances. There's no
9 production of diligence files. As Your Honor knows, there's
10 been a lot of paper exchanged back and forth in this case
11 and none of that has been exchanged with regard to these
12 pharmacies.

13 In terms of conditionally testifying about this type of
14 evidence, we're talking about 12 pharmacies for each of the
15 defendants. That's a lot of time and I know time is of the
16 essence here and we don't think that that is appropriate.

17 And lastly, Your Honor, with regard to tying this up
18 later, none of these analyses or specific pharmacies were
19 culled out in Dr. McCann's expert report. To the extent
20 they had been culled out, we would have been able to
21 question him at his deposition and press about whether there
22 was a demonstrable nexus, but this has just been put forward
23 at this late stage, having him do this analysis with
24 supposedly evidence that will tie back later, and we just
25 don't have that evidence.

1 MR. MOUGEY: Your Honor, they've had these charts
2 for about seven or eight months. This is not something that
3 just came up in the last two weeks.

4 MS. SALGADO: Along with thousands and thousands
5 of pages. I think, just to respond, again, we've been
6 asking for what particular pharmacies will be put at issue.

7 THE COURT: Wait a minute. You're arguing with
8 each other now. Is the purpose of this exhibit to compare
9 the pharmacies in Huntington and Cabell County with other
10 pharmacies to show that there's a big difference here or
11 something, Mr. Mougey?

12 MR. MOUGEY: That's one of the reasons. The other
13 reason, Your Honor, if I call back to -- if I go back to
14 opening, the argument was made in opening that part of the
15 reason that pills in Cabell County were so high is that the
16 surrounding counties were coming to Cabell County for
17 medical treatment.

18 And all we're demonstrating here, Your Honor, is that
19 the surrounding counties, in addition to comparing the
20 averages and the benchmarks are just as high as Cabell
21 County. So, the defense has already opened the door to the
22 issue of people coming from outside the county to get
23 treatment inside the county and this is simply an analysis
24 of surrounding counties a few isolated pharmacies. I
25 promise you, Judge, we've already spent more time arguing

1 this than I would have covered in this chart. These are
2 tools for you to use based on the documents that come in
3 from this point forward.

4 THE COURT: Mr. Schmidt?

5 MR. SCHMIDT: Yes, Your Honor. I don't think
6 that's a fair characterization of what these pharmacies
7 represent. In every instance, or almost every instance, the
8 ones from outside of Huntington-Cabell are larger in volume
9 than the ones from inside Huntington-Cabell. What this
10 appears to be is the plaintiffs taking pharmacies that are
11 outliers by definition outside of Huntington-Cabell that
12 have no geographic nexus to Huntington-Cabell.

13 On this chart alone, we see Greenbrier, we see Mercer
14 and trying to put before the Court even bigger numbers than
15 the numbers they can find in Huntington-Cabell. They have a
16 hole in their case when it comes to Huntington-Cabell and
17 so, they're going outside of Huntington-Cabell to try to
18 fill that hole.

19 THE COURT: Well, I'm going to let him question
20 the witness about the exhibit, but I've got a big problem
21 about whether it's really helpful or relevant, Mr. Mougey,
22 but --

23 MR. MOUGEY: I understand.

24 THE COURT: Your objections will be shown for the
25 record.

1 MR. MOUGEY: Thank you, Judge.

2 THE COURT: And you can get through this rapidly,
3 I hope.

4 MR. MAHADY: Your Honor, just one more objection
5 while I'm still standing. This chart purports to show an
6 average per month for the nation, West Virginia,
7 Huntington-Cabell, and the series of pharmacies here. So,
8 while Mr. Mougey intends to spend only a few minutes on this
9 document, we do think the necessary foundation has to be
10 laid for what was included in those calculations.

11 THE COURT: Well, what about that, Mr. Mougey?

12 MR. MOUGEY: Your Honor, I think we've properly
13 laid the foundation as we've proceeded through the evidence
14 this morning. To me, that's weight evidence. There's more
15 than one way to calculate average. I'm sure Mr. Mahady has
16 figured out, if he wants to cross examine Dr. McCann, then
17 so be it.

18 THE COURT: Okay. I'm going to go ahead and hear
19 it, Mr. Mahady. Your objection will be shown in the record.

20 And my realtime has gone south on me here. I'm not
21 getting anything but a blinking cursor. Would you come and
22 see, Ayme?

23 (Pause)

24 THE CORT: Let's be in recess until I can get it
25 straightened out. You know how technology is. You live for

1 years without it and then you get it.

2 (Recess taken)

3 MR. MOUGEY: I think we lost the witness.

4 THE COURT: We need a witness, don't we?

5 THE WITNESS: I apologize, Your Honor.

6 BY MR. MOUGEY:

7 **Q.** All right. Dr. McCann, I published on the monitor and
8 in front of you Plaintiff Exhibit 43225, Page 1. If you
9 would explain to the Court how this chart is organized
10 starting in the upper left-hand corner, please?

11 **A.** Yes. It's shipment of oxycodone to Huntington, and
12 Cabell County, and to West Virginia, and the nation as a
13 whole, and select pharmacies then in columns from left to
14 right.

15 In the -- in the rows, there is the total shipments in
16 the first row of oxycodone in dosage units for each of those
17 areas or pharmacies. And then the -- below that, the
18 average per month in each of those geographies or to each of
19 those pharmacies.

20 And then, below the average is a listing of the
21 shipments each individual month to the pharmacies or the
22 average shipments to all pharmacies in the jurisdictions in
23 the first three columns.

24 **Q.** Temporal scope with these -- with 43225, what's the
25 time period that you cover?

1 **A.** It's 2006 to 2014, so this is the government-provided
2 opioid data.

3 **Q.** And which -- which one of the defendants does this
4 chart encompass, the averages?

5 **A.** AmerisourceBergen.

6 **Q.** And which drug, Dr. McCann?

7 **A.** Oxycodone.

8 **Q.** Oxycodone? So, if we start on the left-hand column, it
9 begins with date, correct?

10 **A.** Yes.

11 **Q.** All right. And then you have National, West Virginia
12 and Huntington/Cabell, correct?

13 **A.** Yes.

14 **Q.** Will you please walk the judge through the averages and
15 how you calculated the averages under those first three
16 columns?

17 **A.** Sure. The total is using the -- I can verify by using
18 the NPI definition of pharmacies. You'll see that number
19 4,669,306,765 on a -- on one of the exhibits we looked at
20 before lunch. So, that's the total dosage units to
21 pharmacies nationally by AmerisourceBergen during the 2006
22 to 2014 time period.

23 And then the average per month, for months for
24 AmerisourceBergen is shown as shipping oxycodone is 5,036.
25 That's dividing that 4.7 billion dosage units by the number

1 of months that AmerisourceBergen shipped dosage units of
2 oxycodone. And then each of the individual months amount
3 shipped is the average across the pharmacies shipped to that
4 month is reported in the rows below.

5 **Q.** Inclusion in the pharmacies for the both National, West
6 Virginia and Cabell County, is that retail and chain or is
7 that all dispensers?

8 **A.** It's retail and chain according to the NPI
9 classification of retail and chain.

10 **Q.** So, the national average per pharmacy for retail and
11 chain with the NPI definition is what?

12 **A.** 5,036 units.

13 **Q.** All right. The same number for West Virginia?

14 **A.** 8,229 units.

15 **Q.** And for Huntington-Cabell County?

16 **A.** 10,743 units.

17 **Q.** Now, as -- if you would, Dr. McCann, flip through the
18 next one, two, three pages. Explain the monthly input for
19 the Court for any specific month and what each of those rows
20 represent.

21 **A.** Well, we could do it on any of these pages. Maybe it's
22 easiest to just go to the very last row on this one. So,
23 that would be -- and so, if the question was just pick a
24 month and report what the numbers are, January of 2010, the
25 national average shipments by AmerisourceBergen of oxycodone

1 to chain and retail pharmacies was 4,683 units; to West
2 Virginia was 6,849 units; and to Huntington and Cabell
3 County, it was 15,186 units.

4 **Q.** So, let's begin in January of 2006 on Row 1 and
5 Huntington-Cabell. Explain to the Court what is happening
6 with the average shipments of oxycodone to retail and chain
7 pharmacies in Huntington-Cabell.

8 **A.** Well, you can see the average across these months is
9 10,743 dosage units of oxycodone and Huntington-Cabell. And
10 that's a little bit more than twice the national average of
11 5,036 per pharmacy. So, AmerisourceBergen is shipping
12 roughly 2.1 times as many dosage units of oxycodone into
13 pharmacies in Huntington-Cabell than they are to pharmacies
14 around the country.

15 **Q.** All right. So, when you indicated two times, Dr.
16 McCann, the number is in January of '06, comparing those
17 initial two numbers of 4,764 for West Virginia?

18 **A.** I apologize. I was comparing the average in the row
19 directly above it for the entire period, but for January of
20 2006, you're correct that the numbers for Cabell County and
21 Huntington City are 7,569; and for West Virginia, 4,764; and
22 for the country as a whole, 3,424.

23 **Q.** All right. Just as a percentage, the shipment into
24 Cabell County of oxycodone for retail and chain pharmacies
25 is what percentage higher than the national average?

1 **A.** That's about 2.2 times the national average, so it's --
2 you could describe that as 220% of the national average or
3 120% higher than the national average.

4 **Q.** Now, Dr. McCann, if you would please go all the way
5 down to the bottom of the first page, Row 49, what happens
6 to the Cabell County number of oxycodone from January of
7 '06, the average shipment, to January of 2010, three years
8 later?

9 **A.** Just about exactly doubles. It goes from 7,569 to
10 15,186, which is really close to exactly double.

11 **Q.** All right. Then, Dr. McCann, would you please compare
12 the January of 2010 average shipment from a pharmacy in
13 Cabell County to the national average as far as a
14 percentage?

15 **A.** Well, the -- the shipments to the pharmacies on average
16 by AmerisourceBergen doesn't go up nearly as much. It goes
17 up from 3,424 to 4,689. So, that ratio now, instead of
18 being 2.2:1 is now 3.5, a little bit more than three. Three
19 -- maybe 3.4:1. So, it's gone up significantly.

20 **Q.** All right. Dr. McCann, so the same review in West
21 Virginia starting in January of 2006 until January of 2010,
22 three years later, shipments of Oxycodone on average to
23 retail and chain pharmacies in the State of West Virginia?

24 **A.** It's gone up about 40 percent. It goes up from 4,764
25 dosage units per pharmacy in West Virginia serviced by

1 AmerisourceBergen to 6,849.

2 **Q.** All right. Dr. McCann, let me direct your attention to
3 under the section entitled "City of Huntington-Cabell
4 County, SafeScript", which is the first pharmacy on the
5 left. Do you see that, sir?

6 **A.** Yes.

7 **Q.** Dr. McCann, what is the average shipment of oxycodone
8 into SafeScript in Cabell County by AmerisourceBergen for
9 the duration of the ARCos time period of 2006 to 2014?

10 **A.** 35,501 -- 551.

11 **Q.** And approximately what percentage higher is 35,551
12 dosage units of oxycodone than the national average?

13 **A.** That's a little bit more than seven times, so it's 600%
14 more than the national average.

15 **Q.** And, Dr. McCann, just do some -- how many -- the
16 national average at 5,000, in the course of a year, what
17 does the average pharmacy retail and chain receive from
18 AmerisourceBergen of oxycodone across the country, five
19 times 12, 5,000 times 12?

20 **A.** 60,000.

21 **Q.** Now, for SafeScript here in Cabell County at 35,000,
22 35,000 times 12 is?

23 **A.** 420,000.

24 **Q.** So, the average pharmacy around the country receives
25 approximately 60,000 dosage units of oxycodone --

1 THE COURT: Mr. Mahady?

2 MR. MAHADY: Your Honor, I believe Mr. Mougey is
3 leading the witness now. He's testifying for the witness
4 and he's asking the witness if he's correct.

5 THE COURT: Sustained.

6 BY MR. MOUGEY:

7 **Q.** How many dosage units of -- I'm sorry. I just lost
8 track. How many dosage units of oxycodone was it per year
9 for SafeScript?

10 **A.** 426,000.

11 **Q.** 426,000, as opposed to how many for a national average
12 pharmacy for AmerisourceBergen?

13 **A.** Around 60,000.

14 **Q.** 60,000? Dr. McCann, let's look at McCloud Family
15 Pharmacy here in Cabell County. What is the average
16 oxycodone shipment from AmerisourceBergen to McCloud Family
17 Pharmacy?

18 **A.** 18,028.

19 **Q.** And, Dr. McCann, percentage-wise, how much is 13,000
20 higher than 5?

21 **A.** I'm sorry. 18,000 and 28?

22 **Q.** Yes, sir, thank you.

23 **A.** It's 3.6 times as much, so it's 2.6 higher or 260%
24 higher. It's 3.6 times as much.

25 **Q.** Or 260% higher?

1 **A.** Yes.

2 **Q.** And, Dr. McCann, let me direct your attention to the
3 bottom of both SafeScript and McCloud. What's happening to
4 the McCloud average from the beginning of January of 2006 as
5 time progresses throughout the year?

6 **A.** It's increasing pretty steadily over -- over that three
7 and a half years, four years that are listed here on this
8 first page. The first year, the average is somewhere around
9 7 or 8,000 and, in the last year, the average is around
10 25,000, so it's gone up significantly.

11 **Q.** Dr. McCann, if you would, please, sir, just reading
12 across the top of the page under Cabell County and City of
13 Huntington, would you please just read into the record the
14 average pharmacy shipment of oxycodone from
15 AmerisourceBergen into the Cabell County pharmacies?

16 **A.** Yes. For Drug Emporium, it's 13,505. For Medical Park
17 Pharmacy, it's 14,807. For Fruth #5, it's 11,525. For
18 Fruth #12, it's 10,363. For Fruth #2, it's 7,256. For
19 Fruth #11, it's 4,915. And for Walgreens, it's 11,205.

20 **Q.** Dr. McCann, similarly, would you please identify the
21 average shipment of oxycodone for the select pharmacies
22 starting with Fritz's Pharmacy, reading across the page,
23 just those first four or five pharmacies for oxycodone
24 shipments to retail and chain pharmacies and these six,
25 seven pharmacies starting on the right-hand side, right

1 section of this worksheet?

2 **A.** For Fritz Pharmacy and Wellness, it's 36,325. For
3 Bypass Pharmacy, it's 41,735. For Moundsville Pharmacy,
4 it's 19,693. For Nicholas Pharmacy, it's 13,537. And for
5 Four Seasons Pharmacy, it's 31,430.

6 **Q.** Dr. McCann, I'd like to direct your attention to Fritz
7 Pharmacy right here next to the solid black line in the
8 right-hand side of the page. The first year of Fritz
9 Pharmacy in 2006, shipments of oxycodone into Fritz from
10 AmerisourceBergen, just the running average of the first
11 year appears to be what, sir?

12 **A.** Around 19,000.

13 **Q.** And at the end of January of 2010, three years later,
14 what have those numbers increased to?

15 **A.** It's more than double. It's around 40,000, maybe even
16 a little higher. 41 or 42,000.

17 **Q.** Dr. McCann, if you would, sir, please turn the page to
18 the second page of Exhibit 43225 and continue with Fritz.
19 What happens to the numbers of Fritz Pharmacy with shipments
20 of oxycodone from AmerisourceBergen?

21 **A.** It continues to increase. In 2010, the average is
22 approximately 50,000. So, it started out at 18 -- at
23 approximately 18,000 in 2006; approximately 40,000 in 2009;
24 and approximately 50,000 in 2010; and its high around 50,000
25 or in the low 50s through the end of 2012.

1 **Q.** Dr. McCann, one last pharmacy I'd like to touch upon,
2 Bypass Pharmacy, which is directly next to Fritz's. If you
3 would, sir, please turn to Page 2, and what is the first
4 entry for Bypass Pharmacy in it looks like the Fall of 2010,
5 as far as the shipment?

6 **A.** Yes. The first shipment by AmerisourceBergen to that
7 pharmacy of oxycodone, during the ARCOS time period anyway,
8 is September of 2010.

9 **Q.** Is how much, sir?

10 **A.** 8,100.

11 **Q.** And what happens to that number as you continue down
12 the column through time of the number of shipments to -- of
13 oxycodone from AmerisourceBergen Bypass Pharmacy?

14 **A.** Well, it increases quite dramatically. There are three
15 months where it's about 70,000 and a lot of months where
16 it's about 50,000. Most of the months after the middle of
17 this page, around September of 2011, maybe all but the last
18 one are about 40,000. So, the numbers go up quite high and
19 stayed quite high.

20 **Q.** All right. Dr. McCann, if you would please turn to
21 Page 4 of this same exhibit, and is this chart summarized
22 and laid out the same as the prior oxycodone chart?

23 **A.** Yes. This is identical layout, but it's for
24 hydrocodone instead of oxycodone.

25 **Q.** All right. So, let's start off -- same time period,

1 correct, sir?

2 **A.** Yes.

3 **Q.** Let's start off in the left-hand column with the
4 National, West Virginia and Huntington-Cabell County
5 averages. Would you please explain to the Court the
6 National average, West Virginia, down to the local average
7 in Cabell County?

8 **A.** Sure. The national average shipments by
9 AmerisourceBergen to pharmacies is -- nationally is 7,457
10 per pharmacy. In West Virginia, it's 14,448 per month per
11 pharmacy on average and, in Huntington City and Cabell
12 County, it's 16,530. So, just about exactly double the
13 shipments nationally into West Virginia. And then, another
14 15% higher into Huntington and Cabell County.

15 **Q.** And then, Dr. McCann, if you would continue across the
16 page to Cabell and Huntington, the specific pharmacies
17 identified, starting with McCloud, the averages of
18 hydrocodone from AmerisourceBergen?

19 **A.** For McCloud, it is 23,604. For Drug Emporium, it's
20 22,730. For Fruth #12, it's 46,285. For Fruth #5, it's
21 35,218. For Medical Park Pharmacy, it's 19,943. For Fruth
22 #2, it's 28,992. For SafeScript, it's 16,995. For Fruth
23 #11, it's 18,554. And for Medical Arts, it's 7,502.

24 **Q.** So, let's go back to the national average for a minute,
25 Dr. McCann. How many dosage units or pills of hydrocodone

1 in a year does AmerisourceBergen on average ship to retail
2 and chain pharmacies around the country?

3 **A.** Around 90,000, just rounding to 7,500 multiplied by 12,
4 is 90,000.

5 **Q.** Yes, sir. And how many months does it take Fruth #12
6 to hit the national average for the entire year of shipments
7 from -- of hydrocodone to Fruth #12?

8 **A.** Just two months.

9 **Q.** So, two months? It's the same amount as the national
10 average for a year?

11 **A.** Correct.

12 **Q.** Dr. McCann, let's look at the Fruth #5 directly next to
13 Fruth 12. The -- how many months does it take for Fruth #5
14 to hit the national average for a year at Fruth #5?

15 **A.** About two and a half months.

16 **Q.** Now, if you continue across the page, Dr. McCann, let's
17 go to Fruth #1 in Mason County. What is Fruth #1 Mason
18 County's average shipment per month of hydrocodone?

19 **A.** 70,481.

20 **Q.** And what percentage is that higher than the national
21 average approximately?

22 **A.** It's almost ten times as much as the national average.

23 **Q.** And how many months does it take Fruth #1 to receive
24 from AmerisourceBergen shipments of hydrocodone that the
25 average pharmacy around the country would receive in a year?

1 **A.** About a month and a week. About five weeks.

2 **Q.** Let's go to the immediate left under Chapman Pharmacy.
3 That average is, sir?

4 **A.** 58,268.

5 **Q.** And how many months -- well, let's actually start at
6 the top of the page and continue down from January of '06 to
7 January '10. What observations can you make regarding the
8 average number of hydrocodone going to Chapmanville Pharmacy
9 from AmerisourceBergen?

10 **A.** Well, the average that I read into the record, the
11 58,268, is an average across the numbers that follow that in
12 the column. Some of those numbers are quite low, and then
13 some of the numbers are quite astronomical. You can see, as
14 you look down through here, there are values that are above
15 a hundred thousand.

16 The first one greater than a hundred thousand is in
17 October of 2006. There's another one in May of 2007. And,
18 as you get down further in page, there is -- there are eight
19 or ten months where the numbers are all around 100,000.
20 They're in the 90s, or a hundred thousand, or more.

21 So, while the average over the entire time period is
22 the highest number on this -- highest average on the page,
23 58,000, it's also, when you look down through the detail,
24 that there are periods, months on end, where
25 AmerisourceBergen is shipping more than -- or approximately

1 a hundred thousand dosage units of hydrocodone a month to
2 that pharmacy.

3 MR. MAHADY: Your Honor, I think the witness is
4 certainly qualified to say what the numbers are. I do not
5 know if the witness is qualified to provide his commentary
6 on what the numbers show. The last answer, he said that one
7 number is astronomical, but the witness is not qualified on
8 that. He does not know what the medical need is for the
9 community. He has no experience in controlled substance
10 distribution. So, I would just ask for you to instruct the
11 witness to limit those answers.

12 THE COURT: I'll sustain that objection. I don't
13 know how one can say what astronomical means in this context
14 --

15 THE WITNESS: Yes, Your Honor.

16 THE COURT: -- without further explanation. I
17 will sustain the objection.

18 BY MR. MOUGEY:

19 **Q.** Dr. McCann --

20 THE COURT: You haven't asked him anything about
21 Larry's Drive-In Pharmacy in Boone County, Mr. Mougey.

22 MR. MOUGEY: Well, let's make sure we hit Larry's
23 Drive-In Pharmacy. That's my favorite name through the
24 country, I think, any drive-thru pharmacy. Let's talk about
25 Larry's.

1 BY MR. MOUGEY:

2 Q. First page, Dr. McCann, on the oxycodone, Larry's
3 Drive-In Pharmacy.

4 A. Yes.

5 Q. Do you see that? And the national average -- I'm
6 sorry. The average shipment of oxycodone (sic) for Larry's
7 per month is what, sir?

8 A. 67,457?

9 Q. And I said oxycodone. I meant hydrocodone. Let's just
10 make sure we're on the same page. Page 4, Larry's Drive-In
11 Pharmacy for hydrocodone is 67,000; is that your testimony,
12 sir?

13 A. Yes. I'm sorry.

14 Q. Okay.

15 A. I thought you said hydrocodone.

16 Q. I did. It was my mistake. I was on the wrong page.

17 Dr. McCann, observations going down the timeline from
18 January of '06 through January '10 for Larry's Drive-In?

19 A. Numbers are consistently quite high with exception of a
20 counsel of months on the middle of the page. The rest of
21 the numbers are all in the 60, 70, 80,000 dosage unit range.

22 MR. MAHADY: Your Honor, same objection, "quite
23 high". He doesn't know --

24 THE COURT: Sustained. You can ask him specifics,
25 Mr. Mougey, but the editorial comment, I think, is

1 objectionable.

2 MR. MOUGEY: No more adjectives, Dr. McCann.

3 THE WITNESS: Thank you. I apologize.

4 BY MR. MOUGEY:

5 **Q.** The Larry's -- where were we? Larry's Drive-In.

6 All right. Let's move to -- Dr. McCann, does
7 Plaintiffs' Exhibit 43225 accurately reflect the averages
8 for the nation, West Virginia and Huntington-Cabell County
9 of oxycodone shipped by AmerisourceBergen?

10 **A.** Yes.

11 **Q.** And, Dr. McCann, in the rows proceeding down through
12 time, do those individual calculations accurately reflect
13 the ongoing averages of AmerisourceBergen shipments of
14 oxycodone to its retail and chain pharmacies month by month?

15 **A.** Yes.

16 **Q.** And, Dr. McCann, as we proceed across the page, do the
17 pharmacies identified under Huntington-Cabell County, does
18 Plaintiffs' Exhibit 43225 accurately capture the averages
19 over the ARCos time period of 2006 to 2014?

20 **A.** Yes.

21 **Q.** And similarly, Dr. McCann, do the averages proceeding
22 down the page capturing shipments of oxycodone and
23 hydrocodone on these six pages, are they accurately
24 reflected in this exhibit?

25 **A.** Yes.

1 **Q.** And as we proceed across the page to the pharmacies
2 outside of CT2, does Plaintiffs' Exhibit 43225 accurately
3 capture the averages from 2006 to 2014 or during the ARCos
4 time period?

5 **A.** Yes.

6 **Q.** And, Dr. McCann, similarly, do the ongoing averages
7 over time, that is Plaintiffs' Exhibit 43225, does this
8 summary accurately capture the running averages over time of
9 AmerisourceBergen's shipments of hydrocodone and oxycodone
10 to these pharmacies?

11 **A.** Well, the running monthly numbers are not averages any
12 longer. They're the actual number of dosage units, but it
13 accurately reflects those dosage units, yes.

14 **Q.** Yes, sir, thank you. Other than that correction to my
15 question, Dr. McCann, does Plaintiff Exhibit 43225
16 accurately capture the shipments from AmerisourceBergen of
17 oxycodone and hydrocodone as reflected here?

18 **A.** Yes.

19 MR. MOUGEY: Your Honor, plaintiffs move Exhibit
20 43225 into evidence.

21 MR. MAHADY: Your Honor, one objection and one
22 request. The objection is similar to what we were saying
23 this morning. This chart reflects the work product of Dr.
24 McCann, who made decisions about what was included, what was
25 excluded. He added other datasets and he performed math,

1 calculating averages.

2 So, our position is, this is not admissible evidence
3 under Rule 1006. It is demonstrative. The request is that
4 the plaintiffs -- or, I'm sorry -- the defendants are also
5 afforded an opportunity to cross examine Dr. McCann before
6 the Court makes any ruling on this unless you want to
7 sustain my objection.

8 THE COURT: I made a previous ruling and I don't
9 see any reason why it would be any different with regard to
10 this.

11 Mr. Schmidt?

12 MR. SCHMIDT: I would just join in the objection
13 and note we have not yet had testimony on large segments of
14 this exhibit related to Cardinal and McKesson that are
15 trying to be moved in with connection with the rest of the
16 exhibit and, obviously, they haven't even questioned their
17 own witness. We should also have the right to question him
18 on that before it gets admitted.

19 MS. SALGADO: Same objections, Your Honor.

20 MR. MOUGEY: That's actually -- I apologize.
21 That's my -- I thought each one of these were marked as
22 separate exhibits.

23 THE COURT: I'm going to reserve admissibility
24 until the defendants have an opportunity to cross examine
25 Dr. McCann.

1 BY MR. MOUGEY:

2 Q. Let me continue on the Cardinal section, which is the
3 second six-page series. It's the pink or red color.

4 A. Yes.

5 Q. Same layout as the AmerisourceBergen?

6 A. Yes.

7 Q. And if you would, Dr. McCann, start on the left-hand
8 side with the national averages -- national average, West
9 Virginia, Cabell County for oxycodone during the ARCos time
10 period?

11 A. The average shipments per month by Cardinal Health to
12 pharmacies nationally of oxycodone was 4,975. The average
13 shipments by Cardinal to pharmacies in West Virginia was
14 5,460. And the average shipments by Cardinal to pharmacies
15 in Huntington and Cabell County was 6,989.

16 Q. Dr. McCann, in Cabell County, would you please compare
17 the January, 2006 and a running total for the first
18 12 months of hydrocodone from Cardinal into Cabell County
19 and compare it to the last 12 months at the bottom of the
20 page three years later in 2010?

21 A. Yes. That ratio has increased in January of 2006.
22 It's about 1.5:1. 5,120 is about 1.5 times 3,414.

23 And at the bottom, the average shipments by Cardinal to
24 pharmacies in Huntington and Cabell County was 8,559
25 compared to 4,876 nationally. So, it's about 180% of the

1 national average. It's not quite double. So, the ratio has
2 gone up as the shipments to Huntington and Cabell County
3 have increased more than the shipments to pharmacies
4 nationally.

5 **Q.** And, Dr. McCann, the number you're referring to, 4,876
6 at the bottom of the page as compared to 8,559?

7 **A.** Yes.

8 **Q.** And those are the shipments of oxycodone from Cardinal
9 into the national retail and chain versus Cabell County
10 retail and chain?

11 **A.** Correct.

12 **Q.** And, Dr. McCann, you said it was 180%?

13 **A.** Yes.

14 **Q.** Higher?

15 **A.** I'm sorry. 80% higher or 180% of the lower number.

16 **Q.** Okay. Let's continue to the Medicine Shoppe and CVS.

17 Let's start with the Medicine Shoppe. The average into The
18 Medicine Shoppe here in Cabell County per month of oxycodone
19 is what, Dr. McCann?

20 **A.** 18,644 units.

21 **Q.** And what multiplier is that over the national average?

22 **A.** It's a little bit more than 3.5 times, 3.7 times as
23 much.

24 **Q.** And as compared to the Huntington-Cabell average
25 oxycodone shipment from Cardinal?

1 **A.** It's not quite three times as much. It's a little bit
2 more than 2.5 times as much as shipments to the average
3 pharmacy in Huntington and Cabell County.

4 **Q.** And, Dr. McCann, if you would, sir, please, with
5 Medicine Shoppe again look at that first 12 months shipments
6 of oxycodone beginning of the ARCos period in 2006 and
7 compared to the last 12 months and explain what's happened
8 with the amount of shipments?

9 **A.** The average in the first 12 months is a little bit more
10 than 10,000, somewhere between 10,000 and 11,000. And then,
11 of the -- in the last 12 months on this page, the average is
12 approximately 20,000, perhaps a little bit more. So, it's
13 approximately doubled over the span of this four-year
14 period.

15 **Q.** All right. If you would, sir, please turn your
16 attention to CVS. The average oxycodone shipment from
17 Cardinal to CVS here in Cabell County is what, sir?

18 **A.** 14,292.

19 **Q.** And a comparison to the national and Cabell County
20 average?

21 **A.** It's -- it's almost twice the Cabell County average.
22 It's almost three times the West Virginia average. And it
23 is three times or very close to three times the national
24 average.

25 **Q.** And, Dr. McCann, similar to Medicine Shoppe, what has

1 happened with CVS's first 12 months of the ARCos period as
2 compared to three years later at the end of the first page
3 of the last year of 2010?

4 **A.** Well, the shipments to CVS have increased similarly to
5 The Medicine Shoppe. They've gone from around 10,000 dosage
6 units per month to approximately 20,000 dosage units per
7 month.

8 **Q.** All right. Dr. McCann, if you would, sir, please
9 identify the averages for the remaining CVS Pharmacies'
10 receipt of oxycodone from Cardinal Health.

11 **A.** CVS 419 average is 9,593. CVS 425 average is 8,983.
12 CVS 480 average is 7,290.

13 **Q.** All right. Dr. McCann, come back to the first page.
14 I'd like to direct your attention to Page 2 of the page.
15 I'm sorry, Page 8 of Exhibit 43225. And let's continue down
16 The Medicine Shoppe line that you started on the first page.
17 Please explain to the Court the progression of the shipments
18 to Medicine Shoppe of oxycodone from Cardinal as compared to
19 the first 12 months of the ARCos time period 2006.

20 **A.** Well, they continue to increase. The peak amounts are
21 in the middle of this page. In early 2012, where they're
22 running in the high 20s or low 30s of thousands of dosage
23 units per month to Medicine Chest (sic). That compares to
24 the 10,000 per month approximately in the first year.

25 **Q.** Dr. McCann, I'm going to go back to Page 7. If you

1 would, sir, please identify the averages for the first
2 several pharmacies in the right-hand section of the page,
3 beginning with Tri-State of oxycodone from Cardinal.

4 **A.** Tri-State's average is 29,119. CVS 429's average is
5 28,446. Follansbee Pharmacy's average is 24,644. CVS 428
6 average is 21,662. Jefferson Pharmacy's average is 20,613.
7 CVS 159 average is 18,850. Medicap Pharmacy's average is
8 16,650. Craigsville Hometown Pharmacy average is 18,613.
9 Trivillian's Pharmacy average is 15,253. Fruth #1's average
10 is 17,763. Pocahontas Pharmacy average is 15,958. CVS 228
11 average is 11,117. And CVS 203 average is 21,456.

12 **Q.** Dr. McCann, before we leave the Cardinal oxycodone
13 section, would you please turn to Page 8 of this exhibit?
14 Under Tri-State Pharmacy, would you please compare the
15 average for the first 12 months of the ARCos period to -- as
16 we progress down from 2010, 2011 and 2012, as compared to
17 the first year of the ARCos reporting period?

18 **A.** Yes. There's some variability month to month for
19 Tri-State in the first 12 months. The average is in the --
20 is in the low teens of thousands. It's 11 or 12,000. And I
21 don't believe it's 13,000. 11 or 12,000 per month.

22 And you can see on the next page that the shipments
23 from Cardinal Health per month to that pharmacy of oxycodone
24 increases to as high as 50,000, but it is consistently
25 averaging around 40,000 on a trailing 12-month basis for

1 some time period here in 2012 and '13.

2 **Q.** All right. Dr. McCann, if you would, please, sir, turn
3 to Page 10. Page 10 begins the hydrocodone shipment from
4 Cardinal. Is this chart set up similar to what we've just
5 walked through with both the AmerisourceBergen and the
6 oxycodone from Cardinal?

7 **A.** Yes.

8 **Q.** All right. Would you please walk the Court through the
9 averages of national, West Virginia and Huntington-Cabell?

10 **A.** Yes. The average shipments from Cardinal Health to
11 pharmacies nationally was 3,014 dosage units of hydrocodone
12 during the ARcos time period. Into West Virginia, the
13 average was 7,005 per pharmacy. And into Huntington-Cabell
14 County, 6,389.

15 **Q.** And, Dr. McCann, if you would please turn to Page 11, I
16 would direct your attention to Fruth, the four Fruth
17 Pharmacies, Fruth 12, Fruth 5, 2 and Fruth 11. Would you
18 please walk the Court through the averages of the Fruth
19 family individually?

20 **A.** The average monthly shipments of hydrocodone from
21 Cardinal Health to Fruth 12 was 29,155 dosage units. And in
22 the column below that number on Page 11, you'll see the
23 monthly shipments. In the first month, the shipment is
24 27,700, but then the subsequent shipments are in the 30s and
25 40,000s until you get down to August of 2011.

1 **Q.** And, Dr. McCann, progressing across the page, The
2 Medicine Shoppe and the Medicap Pharmacy averages?

3 **A.** The Medicine Shoppe average is 6,695 and the Medicap
4 Pharmacy average is 7,585.

5 **Q.** Similarly, Dr. McCann, would you please just walk
6 through on the right-hand section of this page? Let's start
7 with Family Discount, the average, and proceed across the
8 page.

9 **A.** The average monthly shipments by Cardinal Health to
10 that pharmacy was 75,447. To Town Pharmacy, the average was
11 24,899. To Hurley Drug, the average was 39,092. To Fruth
12 #1, the average was 55,391. To Byard-Mercer, the average
13 was 24,779. To Town & Country Drug, the average was 24,447.
14 For K-Mart #341, the average was 21,316. And to Craigsville
15 Hometown, the average was 24,326.

16 **Q.** Dr. McCann, before we leave Cardinal's hydrocodone,
17 sir, would you please look at Page 10 for Family Discount
18 and the first year of the ARCOS reporting period beginning
19 in January of '06, kind of a running average as compared to
20 the last 12 months on the bottom of Page 10 of
21 Exhibit 43225?

22 **A.** Yes. The average the first 12 months is a little under
23 10,000. And then, you see at the bottom of this page, the
24 last 12 months the average is something more than 100,000.

25 **Q.** And in a period of how many years?

1 **A.** Three and a half years.

2 **Q.** And an increase of what percentage at Family Discount
3 Pharmacy roughly?

4 **A.** I'm sorry, an increase in less than three years. I
5 said more than three years, but in less than three years, it
6 increases by a factor of ten. It increases a thousand
7 percent.

8 **Q.** All right. And, Dr. McCann, if you turn to Page 11,
9 continuing with Family Discount Pharmacy, is there a pattern
10 that continues with Family Discount through 2009 down to
11 2012, the bottom of Page 11?

12 **A.** Yes. With the exception of March of 2010, for a couple
13 of years, the numbers stay above a hundred thousand and as
14 high as 156,000, but consistently 110, 120, 130,000. March
15 of 2010 is 29,000. February of 2011, it's 99,000. July of
16 -- June of 2011, it's 91,000. But all of the other numbers
17 down through October of 2011, so for over two years,
18 substantially higher than a hundred thousand per month.

19 **Q.** Dr. McCann, if you would, on Family Discount Pharmacy,
20 you said Summer of 2010, June, July, August of 2010. What
21 percentage is Family Discount Pharmacy higher than the
22 national, West Virginia and Cabell County percentages of
23 hydrocodone shipped by Cardinal into Family Discount?

24 **A.** Well, on this page, you can see the national average
25 shipment each month in 2010 are listed in the first column

1 of numbers, 2,598, 2,559, 2,524 and so on. There's a couple
2 of those numbers. Three of them are just above -- five of
3 them are just above 3,000 and the others are greater amounts
4 less than 3,000. So, the average in 2010 is something less
5 than 3,000 nationally and the shipments to Family Discount
6 Pharmacy during that time period average substantially more
7 than a hundred thousand, more than a 110,000. So, they're
8 35 times as great as the national average, 3,500%.

9 **Q.** Dr. McCann, if you would please turn to Page 13 of
10 Plaintiffs' Exhibit 43225.

11 **A.** Yes, sir.

12 **Q.** Similarly as to the Cardinal and AmerisourceBergen.

13 **A.** Yes.

14 **Q.** And which drug is contained in the first page of Page
15 13 from McKesson?

16 **A.** Oxycodone.

17 **Q.** And, Dr. McCann, would you please walk the Court
18 through the national, West Virginia and Cabell County
19 averages for retail and chain pharmacies?

20 **A.** Yes. McKesson's average shipment to retail and chain
21 pharmacies nationally across the ARCos time period is 4,294
22 dosage units. In West Virginia, 4,559 dosage units and
23 Huntington-Cabell County, 4,467 dosage units.

24 **Q.** And, Dr. McCann, would you please provide the Court the
25 averages for the Rite Aid stores in Cabell County?

1 **A.** Rite Aid 968 average was 7,552. Rite Aid 423 average
2 was 6,069. Rite Aid 950 average was 4,819. Rite Aid 331
3 average was 3,857.

4 **Q.** Dr. McCann, direct your attention to Rite Aid 968, the
5 first entry. Would you please compare the first 12 months
6 running average on that pharmacy to the shipment per month
7 at the end of Page 13 from 2006 to 2010?

8 **A.** The first 12 months range, monthly shipments, range
9 from 4,000 to 8,200 and average approximately 6,000 per
10 month. And the last 12 rows on this first page reflect
11 shipments of between 6,800 and 14,100, averaging about
12 11,000 per month.

13 **Q.** Dr. McCann, would you do the same kind of summary
14 calculation for the second Rite Aid on Page 13 of
15 Plaintiffs' Exhibit 43225?

16 **A.** Yes. The first 12 months shipments range from 1,700
17 dosage units to 6,200 dosage units and average about 4,000
18 dosage units. The last 12 months on this first page are --
19 range from 4,200 to 10,100 and average around 7,000.

20 **Q.** All right. Dr. McCann, if you would, sir, please
21 direct your attention to Crab Orchard Pharmacy. Would you
22 please just identify the averages for each of the pharmacies
23 on the right-hand side of the page for oxycodone shipments
24 from McKesson?

25 **A.** Yes. The Crab Orchard average is 25,000 two dosage

1 units. For Rhonda's, the average is 21,098. For Colony
2 Drug, the average is 32,600. For Rite Aid 733, the average
3 is 13,841. For Flat Iron Drugstore, the average is 13,729.
4 For Rite Aid 308, the average is 15,786. For Meds 2 Go, the
5 average is 22,859. For Four Seasons, the average is 17,428.
6 For Chapman (sic), the average is 15,844. For Craigsville
7 Hometown, the average is 19,411. For Larry's Drive-In, the
8 average is 17,983. For Smith Drug, the average is 24,769.
9 And for Broadway, the average is 27,876.

10 Q. Dr. McCann, if I could, thank you, direct your
11 attention back to Crab Orchard, the 25,000 and two dosage
12 units of oxycodone from McKesson to Crab Orchard. Would you
13 please turn to Page 14 and explain to the Court, beginning
14 in November of 2010, just roughly the percentage increase
15 from the first period of ARCOS reporting over the first
16 12 months or so?

17 MR. SCHMIDT: And, Your Honor, I know Your Honor
18 is reserving on this question of geographic scope. I will
19 just renew our objection because, now that we've been
20 through this three times, it's clear there is no predicate,
21 no foundation for being laid for any nexus between these
22 non-Cabell County or Huntington pharmacies and the City of
23 Huntington or Cabell County.

24 THE COURT: All right. Your objection is --

25 MR. SCHMIDT: Just reading numbers into the

1 record. I'm sorry, Your Honor.

2 THE COURT: Your objection will be preserved for
3 the record.

4 THE WITNESS: Through that row, that column for
5 Crab Orchard, the numbers increase in 2011 to 45,000 and a
6 great number of the numbers thereafter are in -- and a few
7 before in the 30s and 40s, so that the running average
8 through that couple of year period is approximately 40,000,
9 or not quite double what it was at the beginning of the
10 ARCos period reflected on the previous page.

11 Q. All right. Dr. McCann, if you would please, sir, turn
12 to Page 16 of Exhibit 43225.

13 A. Yes.

14 Q. And the hydrocodone shipments from McKesson into CT2,
15 sir, just the national, West Virginia, Huntington numbers?

16 A. McKesson's average shipments to pharmacies nationally
17 per month was 4,086. Into West Virginia was 4,582. And
18 into Huntington-Cabell, 2,102.

19 Q. And, Dr. McCann, the -- on the right-hand side of the
20 page, Family Discount, the averages there, I'm going to come
21 back to CT2. I'm sorry. Cabell County, starting with
22 Family Discount?

23 A. Family Discount's average was 116,430 or 55 times as
24 much as the Cabell County average.

25 Q. And Chapman (sic)?

1 **A.** 63,579 or approximately 30 times the national average
2 -- I'm sorry -- the Cabell County average.

3 **Q.** And continuing across, Dr. McCann?

4 **A.** Man Pharmacy's average was 40,517. Strosnider's
5 average was 197,341. Four Seasons average was 59,246.
6 Mace's average was 29,792. And Larry's Drive-In was 43,068.

7 **Q.** All right. Dr. McCann, going back to Cabell County,
8 the averages for Rite Aid shipment of hydrocodone?

9 **A.** 2,439 to store 968. Rite Aid 423's average was 2,364.
10 Rite Aid's 331 average was 1,886. Rite Aid's 950 average
11 was 1,472.

12 MR. MOUGEY: Your Honor, the plaintiffs move
13 Exhibit 43225 in its entirety, both the -- or all of the
14 AmerisourceBergen, Cardinal and McKesson averages and
15 comparison pharmacies.

16 THE COURT: All right. Mr. Mahady?

17 MR. MAHADY: Your Honor, we reinstate the same
18 objections that I believe you're going to reserve.

19 THE COURT: And I assume that goes for the other
20 defendants, as well.

21 MR. SCHMIDT: Yes, Yes, Your Honor.

22 MS. SALGADO: Yes, Your Honor.

23 THE COURT: I'll make the same ruling. I'm going
24 to wait until there's cross examination here, on the issue
25 here.

1 MR. MOUGEY: Your Honor, continue with another
2 exhibit? Good time for a couple-minute break or what would
3 you like to do?

4 THE COURT: This might be a good time to take a
5 break. We're a little early, but let's be in recess for
6 about ten minutes.

7 MR. MOUGEY: Did you say ten minutes, Your Honor?

8 THE COURT: Yes, please.

9 You can step down during the break, Dr. McCann, if you
10 wish.

11 THE WITNESS: Thank you.

12 (Recess taken)

13 THE COURT: Mr. Mougey.

14 MR. MOUGEY: Thank you, Your Honor.

15 BY MR. MOUGEY:

16 Q. Dr. McCann, Plaintiffs' Exhibit 44748, Page 4, it's
17 a little bit of a different organization than you put
18 together on the other summaries. Would you please walk
19 the Court through what you have on Page 4 of 44748?

20 MR. MAHADY: Mr. Mougey, --

21 MR. MOUGEY: Mr. Mahady, there's two of them.

22 MR. MAHADY: Okay. We'll take this one.

23 MR. MOUGEY: Thank you. They were each pulled
24 from the same package.

25 MR. MAHADY: That's fine. I just wanted to let

1 you know.

2 BY MR. MOUGEY:

3 Q. Dr. McCann, did you find the 44748?

4 A. No.

5 Q. There should be two -- there's two different packets.

6 This should be in sequential order.

7 A. I have it.

8 Q. My fault, Judge. Okay?

9 A. Yes.

10 Q. Dr. McCann, this summary chart, 44748, Page 4 is laid
11 out differently than some of your other charts. Would you
12 please walk the Judge through the summary and what you've
13 done with the data here?

14 A. Yes. This is the dosage units and MME shipped by the
15 three distributors here, plus additional distribution to
16 pharmacies that are identified in the first column.

17 So those are first categorized as independent
18 pharmacies. There are four Fruth pharmacies, one SafeScript
19 pharmacy, two Medicine Shoppe pharmacies, one McCloud
20 pharmacy, and one Drug Emporium. Those are nine pharmacies.

21 Their total dosage units and total MME are on the far
22 right, but the first two columns of numbers immediately to
23 the right of their names, their family names is the percent
24 of the, of the dosage units into Cabell County and the City
25 of Huntington that those independent pharmacies account for.

1 And below that is another panel. It's the three
2 national chains, CVS, Rite-Aid, and Walgreens, and what
3 their dosage unit, market share, and MME market share is,
4 all of this for oxycodone and hydrocodone for the 2006 to
5 2014 time period.

6 **Q.** All right. Dr. McCann, let's start with Fruth as an
7 example. And would you please walk the Court through the
8 four Fruth pharmacies and going across this summary chart
9 and what each of the different numbers denote?

10 **A.** Yes. So for Fruth, the 18.24 percent dosage unit
11 market share is the ratio of the total dosage units of
12 oxycodone and hydrocodone shipped to those four pharmacies
13 during the 2006-2014 time period.

14 We see that number on the far right. It's 14,850,710
15 divided by the total dosage units shipped to, to all
16 pharmacies in Cabell County and the City of Huntington.

17 The same would be true for Safescript. I'm sorry,
18 maybe sticking with Fruth.

19 **Q.** Why don't we go from Fruth across.

20 **A.** Sure.

21 **Q.** So Fruth dosage and market share. Then what's the
22 column after dosage unit, market share?

23 **A.** It's MME, market share.

24 **Q.** All right. And then the next several columns, explain
25 to the Court what each of those are.

1 **A.** Those are the dosage units shipped by those various
2 distributors of oxycodone and hydrocodone during the
3 2006-2014 time period to those four Fruth pharmacies.

4 Q. All right. Dr. McCann, let me direct your attention
5 to -- you mentioned dosage units. Is it MME or dosage
6 units?

7 **A.** I apologize. It's -- these numbers in the middle
8 section of this exhibit are MME.

9 **Q.** All right. So let's continue across the ABDC. So the
10 61 million MME is from ABDC; correct?

11 **A.** Correct.

12 Q. All right. Would you continue across the page with
13 McKesson and Cardinal?

A. McKesson is 240,495. Cardinal is 51,640,559. Anda is
1,255,515. And other distributors are 1,850,280.

16 Q. All right. So let's cover the different columns across
17 the page. You started to describe the select national chain
18 pharmacies underneath the independent. Would you continue
19 to progress down the page?

20 **A.** Yes. The next row is SafeScript. There's only one of
21 those pharmacies in this list. And the dosage unit market
22 share of oxycodone and hydrocodone for all of Cabell County
23 and Huntington, City of Huntington for that one pharmacy is
24 5.42 percent.

So a way to think about that is that pharmacy got

1 5.42 percent of all dosage units of hydrocodone and
2 oxycodone shipped into Cabell County and the City of
3 Huntington.

4 **Q.** And that is measured by MME. What percentage went to
5 SafeScript?

6 **A.** 13.3 percent.

7 **Q.** And then are you able to tell from the next column
8 where the substantial majority of those MMEs came from,
9 which distributor?

10 **A.** Yes. About 85 percent of the oxycodone and hydrocodone
11 MME to SafeScript came from ABDC.

12 **Q.** That's the 98 million?

13 **A.** Correct.

14 **Q.** And Medicine Shoppe, the two pharmacies, would you walk
15 the Court through the same analysis with the Medicine
16 Shoppe?

17 **A.** Yes. Medicine Shoppe, those two pharmacies, received
18 together 7.25 percent of the dosage units and 11.99 percent
19 of the MME shipped -- of oxycodone and hydrocodone shipped
20 into Cabell and the City of Huntington in the 2006 to 2014
21 time period.

22 **Q.** And then are you able to discern from what percentage
23 or what amount of the MME came from which distributors after
24 Medicine Shoppe?

25 **A.** Yes. If you go from left to right, then, ABDC shipped

1 just a little bit more than 10 million MME, 10 million out
2 of 104,000,000. Most came from Cardinal Health. Cardinal
3 Health shipped 82,825,000 of that 104 million. So about
4 80 percent came from Cardinal Health.

5 **Q.** All right. And McCloud?

6 **A.** I'm sorry. McKesson -- I'm sorry. The next pharmacy,
7 McCloud?

8 **Q.** Yes, sir.

9 **A.** That pharmacy received 5.5 percent of the city and
10 county's dosage units and 8.2 percent of the city and
11 county's MME, virtually all of that from ABDC.

12 **Q.** And Drug Emporium?

13 **A.** Again, one pharmacy had received 4.83 percent of the
14 city and county's dosage units and 5.72 percent of the city
15 and county's MME, virtually all of that from ABDC.

16 **Q.** And, Dr. McCann, what percentage of the market share
17 from MME came from those five family, five pharmacy families
18 in Cabell County?

19 **A.** At least the locations that are listed here, these nine
20 total 52.6 percent of the MME and 41.29 percent of the
21 dosage units.

22 **Q.** All right. Let's continue down the page for the
23 national chain pharmacies. Let's stick with the same, same
24 calculation. What percentage of Cabell County's MME came
25 from those select national chain pharmacies?

1 **A.** 14.36 percent came from four CVS pharmacies.

2 8.33 percent came from five Rite-Aid pharmacies. And

3 2.9 percent came from two Walgreens pharmacies.

4 **Q.** All right. Dr. McCann, if the total of what I believe
5 is 20 pharmacies, what percentage of the MME came from those
6 specific 20 pharmacies?

7 **A.** 78.19 percent.

8 **Q.** And what percentage of the dosage units came from those
9 20 pharmacies?

10 **A.** 72.65 percent.

11 **Q.** And, Dr. McCann, I know it changed over time, but do
12 you have an understanding of roughly how many pharmacies
13 there were in Cabell County?

14 **A.** Yes. My understanding is there were 42 or 43 of them.

15 **Q.** Dr. McCann, if you would please turn to Page 5 of
16 Exhibit 44748. I know there's a lot of information on these
17 charts, but this is converted to dosage units.

18 Would you explain to the Court just kind of the same --
19 I'm sorry. This is converted to market share percentages.

20 Would you please explain to the Court what you've done here?

21 **A.** Yes. Much of the numbers, the dosage unit and MME
22 market shares numbers are the same, and the total dosage
23 units and total MME numbers are the same. But I have
24 calculated each distributor's shipments measured by MME to
25 the select pharmacies as a percent of the total shipments to

1 those select pharmacies.

2 And, so, you can see in the middle panel here that, for
3 instance, ABDC shipped 52.73 percent of the MME shipped to
4 those four approved pharmacies. And Cardinal Health shipped
5 44.39 percent of the MME shipped to those four pharmacies.

6 **Q.** Dr. McCann, what we've marked as Plaintiffs' Exhibit
7 44748, do these two pages accurately reflect the market
8 share both in MME and dosage units for each of those 20
9 pharmacies during the ARCOS period from '06 to '14?

10 **A.** Yes.

11 MR. MOUGEY: Your Honor, plaintiffs move Exhibit
12 44748 into evidence.

13 MR. MAHADY: Your Honor, -- I'm sorry, Your Honor.

14 THE COURT: He just moved an exhibit into
15 evidence.

16 MR. MAHADY: We object, Your Honor.

17 MR. MOUGEY: Not surprising.

18 MR. MAHADY: I know I'm getting a little
19 repetitive, but same objection on 1006 grounds versus
20 demonstrative, same concerns. There's no MME information in
21 the ARCOS data.

22 THE COURT: And everybody else is nodding, so that
23 objection is --

24 MR. MOUGEY: As far as I'm concerned, Judge,
25 that's a standing objection. I understand what

1 Mr. Mahady --

2 THE COURT: Well, my ruling is the same and the
3 objections of all defendants are shown for the record.

4 You may proceed.

5 MR. MOUGEY: Yes, sir. Thank you.

6 BY MR. MOUGEY:

7 **Q.** Dr. McCann, 44758. Dr. McCann, would you please
8 explain to the Court what you've organized on Page 2 of
9 44758?

10 **A.** Yes. It's a list of the pharmacies identified in the
11 ARCOS data with addresses in Cabell County and the City of
12 Huntington. It lists their DEA number, their name, the
13 address, how ARCOS describes them as retail or chain, and
14 then dosage units, weight, and milligrams and total MME of
15 oxycodone and hydrocodone shipments in the 2006 to 2014 time
16 frame.

17 **Q.** All right. Number one on the list is who, Dr. McCann?

18 **A.** SafeScript.

19 **Q.** And how is number one identified? How do you have it
20 organized?

21 **A.** That's page number, so they're sorted by MME. The
22 number in the first column is where within the larger
23 document you would find additional information on each of
24 those pharmacies.

25 **Q.** Yes, sir. But -- and I apologize, bad question. How

1 do you have the -- who rises to the top? How do you
2 organize number one through number 40 or however, however
3 many pharmacies there are?

4 **A.** It's sort of based on MME. It's an equivalent sort
5 really, virtually identical sort if you sort based on weight
6 and milligrams.

7 **Q.** All right. Okay. Dr. McCann, where can the Court find
8 the MME on this chart?

9 **A.** Far right-hand column.

10 **Q.** All right. And do you also have the total dosage units
11 identified?

12 **A.** Yes, --

13 **Q.** All right.

14 **A.** -- in the third column from the right.

15 **Q.** And, Dr. McCann, for SafeScript with 115 million MMEs,
16 how many dosage units do you summarize in Exhibit 44758?

17 **A.** 4,414,640 units.

18 **Q.** Now, just for reference purposes, directly below, T & J
19 Enterprises, d/b/a Medicine Shoppe, how many dosage units
20 has -- oxy and hydro have went to T & J in comparison to
21 SafeScript?

22 **A.** Well, about 10 percent less, 3,000 -- I'm sorry --
23 3,945,310 units.

24 **Q.** And the MME, sir?

25 **A.** 80,381,280, or about 30 percent less.

1 **Q.** All right. CVS, how many dosage units at CVS?

2 **A.** CVS in the fifth row number 391 has 5,137,300 dosage
3 units.

4 **Q.** And in comparison to SafeScript?

5 **A.** That's about 10 percent, a little bit more, 15 percent
6 more than the SafeScript dosage units.

7 **Q.** And comparison to MME of the CVS compared to
8 SafeScript?

9 **A.** The MME for CVS is 44,918,097, or just a little bit
10 more than a third of the SafeScript number. It has -- so it
11 has roughly 10, 15 percent more dosage units, but about
12 65 percent less MME.

13 **Q.** And I'd like to go back to just MME just for a second
14 where we started this morning. Where did you -- where did
15 you pull the MME conversion ratios from?

16 **A.** The CDC website.

17 **Q.** And does the CDC provide calculations?

18 **A.** Yes. They explain how to use the, use these conversion
19 factors for different drug codes to calculate an approximate
20 common measuring stick.

21 **Q.** And when you say common measuring stick, common
22 measuring stick between what?

23 **A.** Across the opioids, converting the weight or strength
24 of an opioid and being able to compare it to the weight or
25 strength of another opioid that may have a different

1 potency.

2 **Q.** So is that just another way of saying that not all
3 opiates have the same amount of opium molecule in each of
4 the pills.

5 **A.** That goes beyond my expertise. I just know that they
6 say in order to, to standardize on the, what I think of as
7 the potency across different opioids, you need to multiply
8 them by these factors that the CDC publishes to get a common
9 measuring stick.

10 **Q.** So essentially to compare apples to apples?

11 **A.** Yes.

12 **Q.** And, Dr. McCann, does the CDC provide examples of how
13 to run those calculations?

14 **A.** Yes.

15 **Q.** And detailed directions?

16 **A.** Yes.

17 **Q.** Dr. McCann, if you would, please, sir, turn to Page 6
18 of the same exhibit. I think some of these will become
19 repetitive as we get into the pharmacy packets as far as the
20 way that they're laid out and easy to run through.

21 So this is SafeScript, same pharmacy. Would you just
22 please walk the Judge through what this slide summarizes?

23 **A.** Yes. Some of these numbers we saw on the previous
24 page. It includes the total dosage units distributed to
25 this pharmacy. That total was 4,414,640.

1 And then directly below that I report subtotals by
2 these three distributors, AmerisourceBergen, Miami-Lukens and
3 Anda. Together they account for 100 percent of the dosage
4 units, 88 percent coming from AmerisourceBergen, 11 percent
5 from Miami-Lukens, and one percent from Anda.

6 Then as I go to the right, I do the same thing in
7 weight and milligrams. 85 percent of the weight we looked
8 at on the previous slide comes from AmerisourceBergen;
9 14 percent from Miami-Lukens; one percent from Anda.

10 And then, finally, 85 percent of the MME comes from
11 AmerisourceBergen; 14 percent from Miami-Lukens; one percent
12 from Anda.

13 **Q.** Thank you, Dr. McCann. The bar chart denoting oxy and
14 hydro SafeScript, would you walk the Judge through what you
15 have summarized on Page 10?

16 **A.** Yes. This is dosage units, so number of pills, if you
17 will, each year and oxycodone in blue and hydrocodone in the
18 red dashed bars from 2006 to 2012.

19 **Q.** And, for example, 2000 -- let's just use 2009, a
20 combination of oxy and hydro into SafeScript in 2009. How
21 would you calculate that?

22 **A.** Well, it's the sum of the dosage units for oxycodone,
23 which is a little more than 500,000, and the sum -- and the
24 dosage units for hydrocodone, which is 200,000 or just a
25 tiny bit less. So in total, a little bit more than 700,000

1 dosage units in 2009.

2 Q. And Page 12, Dr. McCann, please walk the Judge through
3 what you have summarized on Page 12.

4 MR. MAHADY: Your Honor, if I may, there is no
5 foundation for how Dr. McCann calculated the West Virginia
6 averages or the national averages. I raised this objection
7 on the last chart and he simply said this is what the
8 average was.

9 I am happy to stand corrected, but I do not believe Dr.
10 McCann's expert report lays out how he calculated these
11 averages.

12 So we object to him testifying as to the averages
13 without the proper foundation for both the national and the
14 West Virginia figures.

15 MR. MOUGEY: Your Honor, it goes to weight. If
16 Mr. Mahady wants to cross-examine how Dr. McCann calculated
17 averages and figure out how that's done, he's more than
18 welcome to do that on cross, but Dr. McCann --

19 THE COURT: What's the foundation?

20 MR. MOUGEY: Dr. McCann walked through the
21 foundation about 10, 15, 20 slides ago about how he
22 calculated averages back in the matrix.

23 MR. MAHADY: Your Honor, he did not explain how he
24 calculated those averages. He said this is what the average
25 is for the nation and for this month, but he did not explain

1 how he got to that average. It's not in his expert report.

2 And while I can cross-examine on -- him on it, if
3 there's not the proper foundation, I don't know how he did
4 it before he testifies as to it, the defendants are
5 prejudiced. I think at this point we're entitled to know
6 how he calculated the averages.

7 MR. MOUGEY: The, the -- Mr. Mahady has had the
8 calculations in the code for about three years on details of
9 how every single one of these calculations are run. They're
10 by far and away not prejudiced. We've given them the code
11 every single time we've run one of these calculations. He
12 knows that if he doesn't, he can have one of his team look
13 at the code that has the exact --

14 THE COURT: I'm going to overrule the objection
15 for now and let you go ahead.

16 MR. MOUGEY: Thank you.

17 BY MR. MOUGEY:

18 Q. Dr. McCann, on Page 12 of Exhibit 44758 please walk
19 the Court through what you have organized here,
20 summarized.

21 A. Yes. It's the, the shipments by AmerisourceBergen of
22 hydrocodone to the SafeScript pharmacy for the ARCos time
23 period, the 2006 to 2014 period supplemented with the
24 defendant transactional data before and after.

25 Those monthly shipments are reflected in the height of

1 the blue bars. And the, the green line has two different
2 shadings. The darker green line is within the ARCos time
3 period and is based on the ARCos data. The lighter green
4 shaded portions of the green line is the, is the period
5 before and after the ARCos for West Virginia.

6 And, as I said, in a footnote there it's just taking
7 each month the average shipments of AmerisourceBergen to
8 pharmacies in West Virginia.

9 So, for instance, in January of 2009, count up how many
10 of the 42 or 43 pharmacies in Cabell County and Huntington,
11 plus the other pharmacies throughout West Virginia,
12 AmerisourceBergen shipped hydrocodone to. Divide that total
13 number into the total amount of hydrocodone shipments to
14 those pharmacies that month. That's the average. And that
15 would be reflected in the height of the green line. That
16 green line is plotting this average that is recalculated
17 each month.

18 The ABDC national average is calculated in exactly the
19 same way and it's the, the gold-colored line that is below.

20 **Q.** Now, at the bottom of this graph on the timeline, a
21 portion of that is kind of marked a lighter, fainter yellow.
22 What does that denote, Dr. McCann?

23 **A.** That's the period for which we have the ARCos data.

24 **Q.** So if these charts extend beyond the period of the
25 ARCos data, what is the source data for that period of time?

1 **A.** It's the defendant transaction data produced in
2 discovery.

3 **Q.** All right, Dr. McCann. And if you had data that
4 extended beyond 2012 for SafeScript, would it have been
5 included in, in this compilation?

6 **A.** Yes. Shipments to SafeScript stopped sometime in 2012.

7 **Q.** All right, Dr. McCann, I'm going to skip Page 21 and go
8 to Page 27.

9 Dr. McCann, please explain to the Court what you've
10 done on Page 27 of Plaintiffs' Exhibit 44758.

11 **A.** I have done a couple of things. I've taken off the,
12 the national and West Virginia averages and I've added the
13 shipments from other distributors to the shipments from
14 ABDC.

15 So there were a couple of other distributors that sent
16 a small amount of hydrocodone to SafeScript, and the
17 additional amount that, beyond what ABDC shipped to
18 SafeScript is reflected in the, in the gray bar, the beige
19 colored bars here.

20 **Q.** Dr. McCann, I'm going to take you back to Page 6 where
21 we started a minute ago and where AmerisourceBergen and
22 Miami-Lukens are both denoted with the percentages of what
23 they each distributed to SafeScript. Okay?

24 **A.** Yes.

25 **Q.** And if the Judge wants to find out where in time

1 Miami-Lukken distributed to SafeScript, where would he be
2 able to look to figure that out?

3 **A.** Well, on, on this slide, which is for hydrocodone, you
4 can see it, as I said, in the, in the beige bars that are
5 filling in some depression and ABDC shipments. And then
6 there's a separate graph where you see the same thing for
7 oxycodone.

8 **Q.** Okay. So, Dr. McCann, it's difficult to pick up on the
9 screen. But have I circled correctly or accurately on the
10 screen the beige months that the AmerisourceBergen shipments
11 were supplemented by Miami-Lukken?

12 **A.** Yes. There's a little tip of the, the peak month as
13 well, but you've got most of it there in those two.

14 **Q.** I said Miami-Lukken. Miami-Lukken and Anda; correct,
15 sir?

16 **A.** Correct. Anda is only one percent, so it's mostly
17 Miami-Lukken.

18 **Q.** All right. Dr. McCann, similar to the hydrocodone
19 chart we just looked at, would you please explain to the
20 Court what Page 30 is of the SafeScript pharmacy packet?

21 **A.** Yes. It's the same layout. It shows the
22 AmerisourceBergen shipments to this pharmacy of oxycodone
23 monthly in the height of the blue bars.

24 And it also shows the West Virginia average from ABDC
25 to pharmacies that it served monthly with shipments of

1 oxycodone in green, and during the ARCos time period, the
2 national average shipments of oxycodone by ABDC to
3 pharmacies to which it shipped oxycodone.

4 **Q.** And, so, Dr. McCann, Exhibit 43225, what we're
5 referring to is the matrix that we walked through earlier
6 with the spreadsheet with the number of shipments from, say,
7 AmerisourceBergen, does 44 -- I'm sorry -- 43225 pick up
8 shipments from other distributors to the pharmacies
9 identified on this document?

10 **A.** No.

11 **Q.** So the pharmacy packet on Page Number 45 example -- for
12 example, under oxycodone, can the Judge discern again what
13 other distributors supplemented SafeScript outside of ABDC?

14 **A.** Yes. You can see when in this case Miami-Lukens and
15 Anda were shipping additional oxycodone to this pharmacy in
16 addition to what ABDC was shipping to this pharmacy.

17 **Q.** All right. Dr. McCann, let me go back to Page 39.
18 Would you explain to the Court what you've summarized on
19 Page 39 with AmerisourceBergen oxy shipments to SafeScript
20 Number 6?

21 **A.** Yes. This is a, a further filtering of the data, if
22 you will, that creates subtotals. This is dosage units, not
23 oxycodone in total, but in oxycodone of various strengths
24 from AmerisourceBergen to this pharmacy. The, the strengths
25 are identified in the legend on the right.

1 **Q.** So if the Court wanted to identify how many oxy 30s or
2 oxy 15s were shipped by AmerisourceBergen to SafeScript
3 Number 6, he could look on this chart?

4 **A.** Yes. You could see the oxy 15s in purple and the oxy
5 30s in pink visually. And they reflect the underlying table
6 of numbers which are the dosage units of those two
7 strengths, for instance.

8 **Q.** All right. Dr. McCann, does the portion of the
9 pharmacy packet that we just walked through, Plaintiffs'
10 Exhibit 44758, accurately reflect the shipments, the
11 strengths of oxycodone and hydrocodone to SafeScript Number
12 6 from both ABDC and the supplemental distributors?

13 THE COURT: Mr. Mahady.

14 MR. MAHADY: Your Honor, we object to the
15 introduction of this document as evidence. It's layered
16 with Dr. McCann's analysis and if you'd like to reserve
17 judgment, that's fine.

18 THE COURT: All right. I'm going to reserve my
19 ruling until you have an opportunity to cross-examine.

20 Go ahead, Mr. Mougey.

21 BY MR. MOUGEY:

22 **Q.** I'm assuming the answer to my question is?

23 **A.** Yes.

24 MR. MOUGEY: Just to make sure I have it on the
25 record, Your Honor, plaintiffs had moved 44758 in and

1 Mr. Mahady objected. You acknowledged stating the
2 objection. I just want to make sure it was clear on the
3 record. I think we both spoke over each other a little bit.

4 MR. MAHADY: Yeah.

5 BY MR. MOUGEY:

6 **Q.** McCloud Family Pharmacy, Exhibit 44754, Page 1, Dr.
7 McCann.

8 **A.** Yes.

9 **Q.** And where is McCloud Family Pharmacy on this list on
10 Page Number 2?

11 **A.** It is the third, the third pharmacy down from the top.

12 **Q.** And how many dosage units came into McCloud Family
13 Pharmacy?

14 **A.** Four thousand 519, 980.

15 **Q.** Four million?

16 **A.** I'm sorry, 4,519,980.

17 **Q.** And MME, sir?

18 **A.** 71,248,721.

19 **Q.** And, again, this table is organized by the -- by what,
20 sir?

21 **A.** By the MME.

22 **Q.** And McCloud falls where on the list of MME into Cabell
23 County?

24 **A.** Number 3.

25 **Q.** And, Dr. McCann, similar to SafeScript, what percentage

1 of the MME came from AmerisourceBergen into McCloud Family
2 Pharmacy?

3 **A.** 99 percent came from AmerisourceBergen.

4 **Q.** Dr. McCann, please -- similar to the layout of the
5 SafeScript chart, please walk the Court through what you
6 have here on Page 10 of 44754.

7 **A.** Yes. This is the dosage units shipped by all
8 distributors effectively for this pharmacy,
9 AmerisourceBergen to this pharmacy in dosage units of
10 oxycodone and hydrocodone during the ARCOS time period from
11 2006 to 2014, same as the SafeScript figure we looked at.

12 **Q.** Dr. McCann, just totaling 2009, how many dosage units
13 came in through McCloud Family Pharmacy of oxy and hydro?

14 **A.** Approximately 600,000; a little bit less than 300,000
15 of oxycodone and a little bit more than 300,000 of
16 hydrocodone.

17 **Q.** Dr. McCann, do you recall on SafeScript what the total
18 number was for 2009? I'm testing your memory.

19 **A.** I apologize. I don't.

20 **Q.** Let me go back real quick. 2009 SafeScript, Page 10,
21 oxy and hydro?

22 **A.** It was about 750,000.

23 **Q.** So 750,000 from SafeScript dosage units of oxy and
24 hydro in 2009. And how many from McCloud?

25 **A.** 600,000.

1 **Q.** For a total of?

2 **A.** 1,350,000.

3 **Q.** And how many pharmacies?

4 **A.** Two.

5 **Q.** Page Number 12 of 44758 -- I'm sorry, I missed one --
6 and Page Number 18. 44754, McCloud Family Pharmacy,
7 hydrocodone distribution to McCloud. Am I on the right
8 page?

9 **A.** Yes.

10 **Q.** And what do you have compiled on Page 12 of the
11 distribution between McKesson and ABDC?

12 **A.** It shows for hydrocodone monthly shipments from ABDC in
13 blue, and in McKesson and the latter part of the graphic in
14 gray. And there are a couple of small tips, three of them I
15 think, that are in beige. They're barely visible. They're
16 in, in beige.

17 **Q.** And did I circle those correctly on the board, Dr.
18 McCann?

19 **A.** Yeah. The very top of the spike is a little bit of
20 beige I think.

21 **Q.** And, Dr. McCann, those shipments came from whom?

22 **A.** I believe from Anda.

23 **Q.** And the gray came from?

24 **A.** McKesson.

25 **Q.** And the blue is?

1 **A.** The blue is ABDC.

2 **Q.** All right, Dr. McCann, let's go to Page 18. Please
3 explain to the Court on Page 18 what you've done and
4 compiled.

5 **A.** This is the shipments just of AmerisourceBergen to this
6 pharmacy. And in the green line of two shades I've got the
7 ABDC, ABDC average shipments to pharmacies in West Virginia,
8 and in gold the ABDC average shipment to pharmacies
9 nationally.

10 **Q.** Dr. McCann, please turn to Page 15 of Exhibit 44754,
11 oxycodone distribution. Please explain to the Judge what
12 you've summarized here.

13 **A.** Similar to what we just looked at for oxy -- for
14 hydrocodone, I've got the dosage units of oxycodone in blue,
15 the dosage units shipped by ABDC. In black to the right of
16 the graphic I've got the shipments of McKesson. And the
17 shipments of other distributors are the very small beige
18 tips on some of these early blue bars.

19 **Q.** Dr. McCann, if we go to the next page, Page 46, similar
20 to the layout of the prior charts with the averages of oxy
21 and hydro?

22 **A.** Yes.

23 **Q.** And, Dr. McCann, please explain to Judge Faber what
24 you've done here with oxycodone on the averages to McCloud
25 Family Pharmacy.

1 **A.** I, I have the ABDC shipments to -- of oxycodone to this
2 pharmacy in blue. I've got the ABDC average shipments to
3 pharmacies in -- of oxycodone to pharmacies that serviced in
4 West Virginia in green, and the average shipments to ABDC
5 pharmacies in beige nationally.

6 **Q.** Dr. McCann, Page 56, the strength chart with oxycodone
7 and shipments from AmerisourceBergen. Can you briefly
8 explain to the Court what you have summarized on Page 56?

9 **A.** I have the, the shipments of oxycodone in dosage units
10 to this pharmacy from AmerisourceBergen broken down by
11 strength and subtotalled annually.

12 So the height of the bars reflect all of the dosage
13 units of oxycodone. And then the shaded regions within each
14 bar correspond to the strength identified in the legend.

15 **Q.** So similar to the last -- if Your Honor wanted to look
16 at and find oxy 15s or oxy 30s, they're denoted by color
17 code in the specific bar graph; correct?

18 **A.** Correct.

19 **Q.** Dr. McCann, Plaintiffs' Exhibit 44754 that we just
20 walked through, is that an accurate depiction or summary of
21 the shipments from all of the distributors to McCloud Family
22 Pharmacy, the averages and the strengths?

23 **A.** Yes.

24 MR. MOUGEY: And plaintiffs move Exhibit 44754
25 into evidence.

1 MR. MAHADY: Same objection, Your Honor.

2 THE COURT: All right, same ruling as before.

3 BY MR. MOUGEY:

4 **Q.** Dr. McCann, if you would please pull Exhibit 44749.

5 **A.** Yes.

6 **Q.** I believe this is Drug Emporium.

7 **A.** Yes.

8 **Q.** And, Dr. McCann, where does Drug Emporium fall on the
9 ranked list of MME?

10 **A.** It's the fourth.

11 **Q.** And how many MMEs came in through Drug Emporium during
12 the ARCOS period from 2006 to 2014?

13 **A.** 49,723,696.

14 **Q.** And how many dosage units came in through Drug
15 Emporium?

16 **A.** 3,000 -- I'm sorry -- 3,928,100.

17 **Q.** And, Dr. McCann, similar to the layout of the prior
18 pharmacy packets, what percentage of the oxycodone and
19 hydrocodone shipments came from AmerisourceBergen into Drug
20 Emporium in Cabell County?

21 **A.** 100 percent.

22 **Q.** Of both the dosage units and MME?

23 **A.** Yes.

24 **Q.** Dr. McCann, --

25 MR. MAHADY: Your Honor, if I may real quick, I

1 think Mr. Mougey and the witness have both done a good job
2 about the time periods they're speaking about, but some of
3 these pharmacies have been serviced by multiple
4 distributors. So we have some question about who was the
5 only distributor if we can be specific about the time
6 period.

7 THE COURT: Yeah, please --

8 MR. MOUGEY: That's more than fine.

9 THE COURT: I'll sustain the objection. You can
10 clear it up in your questions.

11 BY MR. MOUGEY:

12 Q. Yes. Let's just go back to the specifics. 2006 to
13 2014 from the pharmacy packet, what percentage of the
14 MME and dosage units was from AmerisourceBergen?

15 A. 100 percent.

16 Q. All right. And if you look below, there's H.D. Smith
17 identified as well; correct, Dr. McCann?

18 A. Yes.

19 Q. And 14. -- 14,800 dosage units out of approximately
20 four million?

21 A. Yes. It's, it's about four tenths of one percent. So
22 it's 100 percent on AmerisourceBergen. It could be 99.75
23 for AmerisourceBergen and 0.25 for H.D. Smith or something
24 like that.

25 Q. All right, Dr. McCann, on the Page 10, again, what,

1 what does this slide summarize?

2 **A.** It shows the dosage units of oxycodone and hydrocodone
3 annually shipped to this Drug Emporium from 2006 to 2014.

4 **Q.** I'm going to test your memory again. I know it's late
5 in the day. 2009 how many total dosage units of oxycodone
6 and hydrocodone came into Drug Emporium from
7 AmerisourceBergen roughly?

8 **A.** Around 550,000.

9 **Q.** All right. Do you recall what the number was from
10 SafeScript and McCloud Family Pharmacy for 2009 in total?

11 **A.** The total was 1,350,000.

12 **Q.** And if we add on the Drug Emporium totals from 2009 is
13 how much, Dr. McCann?

14 **A.** 550,000. You get about 1.9 million.

15 **Q.** So in the year 2009 from AmerisourceBergen, oxycodone
16 and hydrocodone into three pharmacies, what's the total?

17 **A.** Almost two million dosage units. 1.9 million was my
18 estimate just looking at the graphs.

19 **Q.** I want you to assume the population in Cabell and
20 Huntington at that point is approximately 100,000. How many
21 dosage units of oxycodone and hydrocodone came into Cabell
22 County and the City of Huntington in 2009 from
23 AmerisourceBergen per cap from just three pharmacies?

24 MR. MAHADY: Your Honor, that's a lot of testimony
25 from Mr. Mougey.

1 THE COURT: Well, overruled. He can answer if --
2 well, overruled. You can answer.

3 THE WITNESS: 19.

4 BY MR. MOUGEY:

5 **Q.** Dr. McCann, Page 12 continuing with Drug Emporium,
6 what have you compiled and summarized on Page 12?

7 **A.** This is the hydrocodone shipments monthly from
8 AmerisourceBergen, Cardinal Health, and others from 2004 to
9 2018.

10 **Q.** And turning the page -- I'm sorry. Page 18 for
11 hydrocodone, please explain to the Court what you have with
12 the averages compiled on slide 18.

13 **A.** The -- again, the averages for West Virginia are the
14 monthly average shipments to pharmacies that
15 AmerisourceBergen serviced in West Virginia is plotted in
16 green calculated monthly.

17 The dark green is the ARCos time period. The light
18 green is the time period where we have only defendant
19 transaction data.

20 The gold line is the national average shipments of
21 hydrocodone by AmerisourceBergen to pharmacies monthly.

22 **Q.** I'll skip slide 28.

23 Dr. McCann, on Page 34, the hydrocodone shipments from
24 Cardinal outside of the ARCos period. Explain to the Court
25 what, what you've done on Page 34.

1 MS. SALGADO: Your Honor, if I could just note one
2 objection, please.

3 THE COURT: Yes.

4 MS. SALGADO: I just want to renew our objection
5 with regards to the data that Cardinal Health produced
6 earlier than any other defendant. And, again, we would note
7 that we don't believe we should be penalized for having
8 produced additional data and it is misleading to present
9 charts involving earlier data from just Cardinal Health.

10 THE COURT: Mr. Mougey, do you want to respond to
11 that?

12 MR. MOUGEY: This goes to the weight, Your Honor.
13 If Cardinal Health wants to argue --

14 THE COURT: I agree. Overruled.

15 MS. SALGADO: Thank you.

16 BY MR. MOUGEY:

17 Q. Skip Page 41 and oxycodone to Drug Emporium from
18 Cardinal and ABDC. Would you explain to the, to the
19 Court what you've compiled on Page 15?

20 A. Yes. This is oxycodone shipments, dosage units to Drug
21 Emporium. You can see in the early time period it's all
22 ABDC, and in the later time period it's all Cardinal Health.

23 Q. Dr. McCann, again --

24 And, Judge, just correct me if we've already said this
25 enough.

1 BY MR. MOUGEY:

2 Q. But the yellow denotes, the highlight on the
3 bottom?

4 A. That's the -- the yellow shaded area is the area for
5 which we have -- the time period for which we have ARCos
6 data. It's the same basic data but the 2006 to 2014 data we
7 got nationally from the government. And very similar data
8 we got from defendants in discovery for that same time
9 period.

10 So they overlap, 2006 to 2014. But the defendants also
11 produced the analogous data for some periods before and some
12 periods after the 2006-2014 period covered by the
13 government-produced data.

14 Q. Dr. McCann, to Mr. Mahady's point, where can the Court
15 look to determine what time period is encompassed in this
16 slide, for example, on 15?

17 A. Well, in the upper left-hand corner it's identified as
18 November of 2004 to May of 2018. It's sort of visually
19 captured by the graphic, but the precise dates are up in the
20 upper left-hand corner.

21 Q. Page Number 47 for Drug Emporium, the layout is similar
22 to the previous slides for other pharmacies. Please explain
23 to the Judge what you've compiled on Page 47.

24 A. I think we looked at the same graphic for
25 AmerisourceBergen's hydrocodone shipments. These are the

1 oxycodone shipments to Drug Emporium.

2 The oxycodone shipments from AmerisourceBergen are in
3 blue vertical bars. The average shipments of oxycodone by
4 AmerisourceBergen to pharmacies in West Virginia is
5 reflected in the -- are reflected in the green line.

6 And the average of AmerisourceBergen shipments to
7 pharmacies nationally month by month is reflected in the
8 gold-colored line.

9 **Q.** And Page Number 57 with the strengths, similar layout
10 to what we've looked at with prior oxy strengths?

11 **A.** Yes.

12 **Q.** Dr. McCann, Page 63 with Cardinal's shipment to Drug
13 Emporium, please explain what you have here.

14 **A.** Cardinal shipments pick up sometime, a few months, six
15 months after the end of the ARCOS time period, shipments to
16 this Drug Emporium. And, so, they are -- the red vertical
17 bars, that's from the defendant transaction data. And we
18 compare that -- those shipments to the Cardinal Health's
19 average shipments to West Virginia pharmacies and pharmacies
20 nationally in the green and gold-colored lines.

21 **Q.** And on Page 70, Dr. McCann, Cardinal's oxy sorted by
22 strength?

23 **A.** Yes, same interpretation as the previous strength
24 graphs we looked at as subtotals of dosage units by strength
25 shipped by -- of oxycodone shipped by Cardinal Health to

1 this pharmacy.

2 MR. MOUGEY: Your Honor, plaintiffs move for
3 Exhibit 44749, the Drug Emporium pharmacy report.

4 MR. MAHADY: Same objection, Your Honor.

5 THE COURT: All right. I'm going to reserve
6 ruling on that until cross-examination as I have done
7 before. The defendants' objection will be noted.

8 BY MR. MOUGEY:

9 **Q.** Dr. McCann, turn to Plaintiffs' Exhibit 44747, Page
10 1, Custom Script. Do you see where Custom Script falls
11 in the list, Dr. McCann?

12 **A.** Yes. It's about a third of the way up from the bottom.
13 It's -- in the first column it says 123.

14 **Q.** And the total amount of dosage units in Custom Script?

15 **A.** 441,100.

16 **Q.** And total MME?

17 **A.** 11,769,634.

18 **Q.** Skip to Page 3 of Plaintiffs' Exhibit 44747. Would you
19 explain to the Court on Page 6 of 44747 what we have?

20 **A.** These are shipments of oxycodone and hydrocodone to
21 Custom Script Pharmacy by year 2010 to 2013.

22 **Q.** And just 2011 how many oxycodone came in through Custom
23 Script?

24 **A.** A little bit more than 160,000.

25 **Q.** And how many roughly hydrocodone?

1 **A.** A little more than 20,000.

2 **Q.** So in total?

3 **A.** About 185,000.

4 **Q.** And on Page 2008, the black is which defendant, Dr.
5 McCann?

6 **A.** McKesson.

7 **Q.** And the yellow and green lines again are?

8 **A.** The green line is the average monthly shipments,
9 average shipments to pharmacies monthly for McKesson in West
10 Virginia. And the gold line is the average shipments of
11 McKesson to pharmacies monthly nationally.

12 **Q.** And, now, we started with Custom Script looking at
13 where they were on the list. And how many years does it
14 appear that Custom Script was open based on the data that we
15 have?

16 **A.** We had four years of shipments. So there's, there's
17 not much in the last year and not a whole lot in 2012. It's
18 almost all in those first two years.

19 **Q.** In the first two years, rough average for McKesson on
20 oxycodone shipments to Custom Script?

21 **A.** About 15,000 dosage units a month.

22 **Q.** And McKesson's national average in the yellow line is
23 during that time period?

24 **A.** About 5,000.

25 **Q.** And McKesson's national -- I'm sorry -- West Virginia

1 average during that two-year time period just roughly?

2 **A.** Maybe 7,000.

3 **Q.** And if you'd turn to Page 14 of the Custom Script
4 packet. Again, these are strengths from oxycodone?

5 **A.** Correct.

6 **Q.** And the kind of pinkish-purplish color are oxy 30s?

7 **A.** Yes.

8 **Q.** And the purple are?

9 **A.** Oxy 15s.

10 **Q.** And, Dr. McCann, if you look at 2011, what percentage
11 of the oxycodone shipments, just roughly, is measured by
12 dosage unit are oxy 30s and oxy 15s?

13 **A.** It's a little bit more than -- or just about exactly
14 three quarters, 75 percent is in those two strengths.

15 **Q.** And similar to the other pharmacy packets, Dr. McCann,
16 have you summarized accurately the shipments from McKesson
17 of oxycodone and hydrocodone and the averages and strengths
18 accurately?

19 **A.** Yes.

20 MR. MOUGEY: And, Your Honor, plaintiffs move in
21 Plaintiffs' Exhibit 44747, the Custom Script Pharmacy
22 packet.

23 MR. SCHMIDT: Your Honor, we'll ask for the same
24 ruling as before that we reserve admissibility until after
25 cross.

1 THE COURT: Yeah, so ruled.

2 MR. SCHMIDT: Thank you, Your Honor.

3 BY MR. MOUGEY:

4 **Q.** Dr. McCann, if you would please open Plaintiffs'
5 Exhibit 44755, which is the Medicine Shoppe. I'm going
6 to stay on this first page. The format changes a little
7 bit.

8 Dr. McCann, would you just walk the Court through the
9 header on the pharmacy packet for the Medicine Shoppe and
10 explain the difference between single pharmacies and family
11 pharmacies in the pharmacy packages.

12 **A.** Well, of course, some of the pharmacy packages we group
13 together the analysis for one or more locations. And in
14 this case for Medicine Shoppe, there are two of them, two
15 Medicine Shoppe pharmacies combined.

16 **Q.** So let's -- same list. Tell the Court where the
17 Medicine Shoppes are sort of by MME.

18 **A.** Yes. So the first one is number two on this list. And
19 the next one is down about 40 percent of the way. It's in
20 the first row. It's got a number 61. It's the Medicap
21 Pharmacy.

22 **Q.** So Medicap and T & J doing business as Medicine Shoppe
23 are grouped together?

24 **A.** Correct.

25 **Q.** And, Dr. McCann, Page 6 have you summarized the

1 shipments of oxycodone and hydrocodone to the Medicine
2 Shoppe from different distributors?

3 **A.** Yes.

4 **Q.** And would you please walk the Court through what you
5 have delineated on Page 6 of the shipments from -- or to
6 Medicine Shoppe from different distributors, but if you'd
7 focus on the combined portion of this document.

8 **A.** Yes. There were 5,900,850 dosage units shipped to the
9 two Medicine Shoppe facilities in the 2006-2014 period;
10 74,990,134 milligrams in weight; and 104,202,758 total MME
11 to those two locations.

12 **Q.** And what percentage of the dosage units came from
13 Cardinal Health?

14 **A.** 60 percent.

15 **Q.** And what percentage of the total MME came from Cardinal
16 Health?

17 **A.** 79 percent.

18 **Q.** And, Dr. McCann, what percentage of the dosage units
19 came from AmerisourceBergen?

20 **A.** 16 percent.

21 **Q.** And what percentage of the MME came from
22 AmerisourceBergen?

23 **A.** 10 percent.

24 **Q.** So in total between AmerisourceBergen and Cardinal
25 Health, what percentage of the Medicine Shoppe from oxy and

1 hydro came from the two of them combined?

2 **A.** 76 percent of the dosage units and 89 percent of the
3 MME.

4 **Q.** Dr. McCann, please turn your attention to Page 13 of
5 Plaintiffs' Exhibit 44755. Does this continue to combine
6 the two Medicine Shoppes together?

7 **A.** Yes. You can see that denoted in the upper left-hand
8 corner where it says "combined" and there are two DEA
9 registrant numbers there.

10 **Q.** In the upper left-hand corner?

11 **A.** In the upper left-hand corner, yes.

12 **Q.** Dr. McCann, just again use 2009, 2010, just roughly how
13 many oxy and hydrocodone came in through two Medicine Shoppe
14 pharmacies here in Cabell County just each year roughly?

15 **A.** It's approximately 700,000 dosage units in each year.

16 **Q.** And, Dr. McCann, explain to the Court what this chart
17 on Page Number 15 does to delineate which shipments come
18 from which distributors of hydrocodone during this period of
19 time.

20 **A.** The, the shipments of hydrocodone to this pair of
21 pharmacies from Cardinal Health are denoted with the heights
22 of the red bars, from AmerisourceBergen with the heights of
23 the blue bars, and from McKesson with the heights of the
24 gold-colored bars.

25 **Q.** Now, let's talk about different datasets you've

1 compiled. The yellow, as you testified, is the ARCOS time
2 period; correct?

3 MR. SCHMIDT: I'm sorry. This might just be me.
4 I can't distinguish between the other and McKesson. If you
5 could distinguish it, I would appreciate it. My
6 understanding is the vast majority of the non-red and
7 non-blue is not McKesson.

8 MR. MOUGEY: You're exactly right.

9 THE WITNESS: I apologize.

10 MR. MOUGEY: May I explain further, Your Honor? I
11 think Mr. Schmidt is correct.

12 MR. SCHMIDT: Thank you.

13 THE COURT: Yes, please.

14 BY MR. MOUGEY:

15 **Q.** Let's go back. I think we can clear it up back on
16 Page 6 because the colors do appear very similar.

17 So if we go back to the summary on Page 6 of the
18 combined, where is McKesson on Page 6, Dr. McCann?

19 **A.** McKesson is second up from the bottom for that first
20 panel and it's essentially zero.

21 **Q.** So when we go back to the page that we just left, Page
22 15, I'm going to call it golder, whatever that is, beige-y
23 color, is that McKesson?

24 **A.** No. I apologize. I misspoke. That's the other
25 distributors.

1 **Q.** Okay. And --

2 THE COURT: Does that take care of it, Mr.
3 Schmidt?

4 MR. SCHMIDT: It does. Thank you, Mr. Mougey.

5 MR. MOUGEY: Thank you for pointing that out. My
6 apologies.

7 MR. MAHADY: Thank you, Your Honor.

8 BY MR. MOUGEY:

9 **Q.** Dr. McCann, the Cardinal dataset goes temporally
10 from what time period to -- the time frame?

11 **A.** 1996 to 2018.

12 **Q.** Okay. And the AmerisourceBergen time -- dataset
13 encompasses what time period?

14 **A.** It starts in 2004.

15 **Q.** Now, we have a, what appears to be a blank period from
16 other than some Cardinal data from 2004 to 2005. What does
17 that tell you, if anything, Dr. McCann, during that time
18 period, the fact that there is just Cardinal?

19 **A.** Well, it's so much less than the total and the
20 immediately preceding and immediately following time period
21 tells me that there were some other distributors of
22 hydrocodone at the Medicine Shoppe aside from Cardinal and
23 we've still got data on them.

24 MR. MOUGEY: Mr. Mahady.

25 MR. MAHADY: Your Honor, I just object to the

1 characterization of "so much less," but that's it.

2 MS. SALGADO: Your Honor, also note an objection
3 to lack of foundation for the witness to testify about
4 what's not shown on the graph.

5 MR. MOUGEY: Judge, I'll rephrase the question.
6 It was a bad question on my part.

7 THE COURT: I'll sustain the objection to both of
8 them.

9 BY MR. MOUGEY:

10 **Q.** I apologize. I'm getting tired. The -- do we --
11 the empty -- prior to 2006, outside of Cardinal do we
12 have any datasets going into the Medicine Shoppe? And I
13 just asked another bad question. Prior to 2000 -- I'm
14 sorry, Your Honor.

15 Prior to 2004, do we have any datasets outside of
16 Cardinal so we can identify shipments of oxy and hydro into
17 the Medicine Shoppe?

18 **A.** No, we do not.

19 **Q.** Okay. Let's go to Page 34. What have you summarized
20 on Page 34 with Cardinal's hydrocodone shipments to the
21 Medicine Shoppes?

22 **A.** It's the same red bars. They reflect the Cardinal
23 Health shipments of hydrocodone to the Medicine Shoppe
24 pharmacies during the period for which we have Cardinal
25 Health data, 1996 to 2018.

1 **Q.** And, Dr. McCann, could you just do some rough math on
2 averages from 1996 to 1997 of -- I'm sorry -- to 2002 to
3 2003 of Cardinal Health shipments of hydrocodone to the
4 Medicine Shoppe as far as the increase percentage wise?

5 MS. SALGADO: Objection, Your Honor. Again, we
6 just renew our objection in particular to this detailed
7 testimony about data that only Cardinal Health produced as
8 to this early time frame.

9 MR. MOUGEY: Your Honor, that continues to go to
10 weight.

11 THE COURT: I think it does go to the weight
12 rather than the admissibility and I'll overrule the
13 objection.

14 BY MR. MOUGEY:

15 **Q.** Is the Cardinal data going back to 1996 a robust
16 dataset?

17 **A.** In our review of the data, it seems of equal quality to
18 the later data that's produced for the ARCos time period or
19 for the time periods where the other defendants produced
20 data. The earlier data appears to be just as good.

21 THE COURT: What do you mean by robust data?

22 THE WITNESS: Well, I, I interpreted him to say
23 that it was informative, that we could use it, we could
24 verify it, and we could create analysis or summaries based
25 on it. I agree "robust" is almost a meaningless word. But

1 I interpreted him to be asking me whether it was, whether it
2 was a useful database, whether it was the data that they
3 produced to us, to the, to counsel apparently reflecting
4 Cardinal's shipments of opioids to pharmacies, whether that
5 was similar to and used in the same way as the data they
6 produced later including during the ARCos time period.

7 That's how I -- I'm sorry. That's how I interpreted it.

8 BY MR. MOUGEY:

9 **Q.** Dr. McCann, would you just simply calculate a rough
10 percentage increase of the dosage units of hydrocodone
11 from '96, '97 up until 2002, 2003, and the beginning
12 portion of this timeline of Cardinal Health hydrocodone
13 shipments?

14 **A.** Yes. It increased approximately 400 percent. It's
15 roughly five times as great an average of about 12,500
16 versus an average of about 2,500 in the first part of that
17 graph.

18 **Q.** Okay. Let's skip slide 50 and continue to Page 18 of
19 44755, Dr. McCann, where you summarize regarding oxy
20 distribution to the Medicine Shoppe on this page.

21 **A.** The red bars are the Cardinal Health shipments monthly
22 of oxycodone for this pharmacy reflected in the data we
23 have. The blue bars are the shipments by ABDC to this -- of
24 oxycodone monthly to this pair of pharmacies. And the beige
25 color is shipments from other pharmacies monthly to these

1 two pharmacies.

2 **Q.** Dr. McCann, I'd like to do some rough math on the
3 percentage increase from that 1996 -- I mean 1996, '97, '98
4 time period to just the peak, roughly the percentage
5 increase.

6 **A.** Well, they're up approximately 25 times, 250 -- I'm
7 sorry -- 2,500 percent, if you will.

8 **Q.** From 1996, 1997 until 2008, 2009? Is that fair, Dr.
9 McCann?

10 **A.** Yes.

11 **Q.** Dr. McCann, on Page 96, the strengths of oxycodone from
12 Cardinal Health, would you please explain to the Court what
13 you've done here similar to some of the other summaries?

14 **A.** Yes. We have -- in some of the other summaries, for
15 instance, on the previous slide showed subtotals of
16 shipments of oxycodone monthly from Cardinal Health to these
17 two pharmacies.

18 Here they're aggregated up annually, but then separated
19 by drug strengths. So this is -- these are subtotals of
20 shipments of oxycodone dosage units annually from Cardinal
21 Health to Medicine Shoppes to pharmacies by strength.

22 **Q.** Dr. McCann, in 2012 can you provide the Court with an
23 estimate of the percentage of oxy 30s and oxy 15s that came
24 from Cardinal to the two Medicine Shoppes?

25 **A.** Yes. It's a little bit more than 60 percent, somewhere

1 between 60 and 65 percent from those two strengths.

2 **Q.** Dr. McCann, just two more summaries on Medicine Shoppe.

3 Just for reference --

4 THE COURT: Is this a good place to stop, Mr.
5 Mougey?

6 MR. MOUGEY: I've got two pages on Medicine Shoppe
7 and I'm done. Is that okay, Judge?

8 THE COURT: Okay. Go ahead.

9 BY MR. MOUGEY:

10 **Q.** Upper left-hand side, Dr. McCann, one Medicine
11 Shoppe or two on this slide?

12 **A.** One.

13 **Q.** And would you please explain to the Court what you've
14 done here with the one Medicine Shoppe and the Cardinal
15 averages over time?

16 **A.** Sure. On the previous graphs we were looking at, I was
17 plotting the vertical bars, the shipments from Cardinal
18 Health to both Medicine Shoppe locations.

19 This is shipments just to one. And I'm comparing those
20 shipments monthly of oxycodone to Cardinal Health's
21 shipments of oxycodone to pharmacies on average in the state
22 in green and to the national averages in the gold color.

23 **Q.** And, Dr. McCann, during this period '10, '11, '12, what
24 percentage of shipments to the Medicine Shoppe, T & J
25 specifically, what percentage of the oxycodone shipments to

1 this specific Medicine Shoppe were higher than the national
2 average?

3 **A.** The shipments are about three times the national
4 average, so 200 percent higher.

5 **Q.** And, Dr. McCann, on this last Medicine Shoppe slide,
6 again this is the strengths delineated from the Cardinal
7 shipments of oxycodone to T & J?

8 **A.** Yes.

9 **Q.** And, similarly, let's do 2012. What percentage of the
10 oxy 30 and oxy 15 was Medicine Shoppe's -- Cardinal
11 shipments to the Medicine Shoppe?

12 **A.** About 70 percent.

13 MR. MOUGEY: Your Honor, plaintiffs move Exhibit
14 44755 into evidence.

15 MR. MAHADY: Same objection, Your Honor.

16 MS. SALGADO: Same objection.

17 THE COURT: Same ruling.

18 MR. MAHADY: Thank you.

19 MR. MOUGEY: Consistent.

20 THE COURT: Are we done?

21 MR. MOUGEY: Yes, sir. When I say we're done,
22 we're done for this afternoon, yes, sir.

23 THE COURT: Okay.

24 Dr. McCann, you'll probably welcome this news. You get
25 to come back at 9:00 in the morning. We look forward to

1 hearing more from you at that time.

2 And I'll see everybody at 9:00 a.m.

3 MR. MOUGEY: Thank you, Your Honor.

4 MR. FARRELL: Judge, I've got one administrative
5 matter.

6 THE COURT: Yes, sir.

7 MR. FARRELL: So for purposes of tomorrow, we're
8 likely to call Mr. Chris Zimmerman who's from ABDC. And,
9 so, for purposes of providing notice, we intend to use many
10 of the exhibits that have not yet been admitted, but they
11 include the P-44711, P-44758 which is the SafeScript packet,
12 P-44754 which is the McCloud Pharmacy packet, P-44749 which
13 is the Drug Emporium packet, and P-43225 which is the
14 AmerisourceBergen matrix of pharmacies.

15 And, so, without knowing your ruling, I just want to
16 give advance notice. That's part one.

17 Part two is you entered an order on ECF 1301 where
18 media requests were directed to the lawyers for copies of
19 exhibits made by the attorney who proffered it. So we're
20 getting media requests for our exhibits. And I didn't -- my
21 staff, my able staff is asking me to get guidance on the
22 production of the trial packs from today.

23 MR. MAHADY: Your Honor, if the defendants have a
24 say here, which I'm not sure we do, we would object to any
25 of these exhibits and demonstratives being shared with the

1 media until we've had an opportunity to cross-examine the
2 witness.

3 THE COURT: Well, I agree with that. And, also, I
4 think if you give the exhibits piecemeal to the media, I
5 mean, the public is entitled to notice and -- but you run
6 the risk of confusion if select exhibits are delivered to
7 the press it seems to me.

8 I don't want the press not to have access, the public
9 have access to the press of what's going on here, but it
10 seems to me that that principle doesn't require turning over
11 the exhibits at this point.

12 MR. MAHADY: Thank you, Your Honor.

13 THE COURT: Does everybody agree with that?

14 MS. MAINIGI: Yes, Your Honor.

15 THE COURT: All right. I'll see everybody in the
16 morning then.

17 (Trial recessed at 5:06 p.m.)

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23 CERTIFICATION:

24 I, Ayme A. Cochran, Official Court Reporter,
25 and I, Lisa A. Cook, Official Court Reporter, certify that

#	1,472 [1] - 144:13 1,700 [1] - 141:18 1,750,000 [1] - 71:9 1,850,280 [1] - 148:17 1,886 [1] - 144:12 1-2-3 [1] - 16:18 1.5 [1] - 132:24 1.5:1 [2] - 45:2, 132:24 1.9 [2] - 172:16, 172:19 \$ \$20,000.00 [1] - 16:13 ' '02 [1] - 90:13 '04 [1] - 90:13 '06 [7] - 90:9, 117:18, 118:9, 126:8, 128:20, 138:21, 152:11 '10 [3] - 126:9, 128:20, 189:25 '11 [2] - 71:7, 189:25 '12 [1] - 189:25 '13 [1] - 137:3 '14 [2] - 90:9, 152:11 '94-'95 [1] - 11:15 '96 [2] - 90:12, 187:13 '97 [2] - 187:13, 188:5 '98 [1] - 188:5 0 0 [1] - 39:1 0.25 [1] - 171:25 00907 [2] - 2:5, 2:17 04% [1] - 51:6 06 [1] - 49:9 1 1 [9] - 62:5, 114:10, 117:6, 125:19, 125:25, 138:14, 165:8, 177:12 1% [3] - 22:9, 22:10, 49:18 1's [1] - 136:11 1,000 [4] - 37:2, 67:15, 68:9, 71:10 1,100 [1] - 68:9 1,114,933,273 [1] - 72:9 1,197,161,809 [1] - 62:5 1,255,515 [1] - 148:17 1,350,000 [2] - 167:4, 172:13 1,374,953,247 [1] - 65:9	136:23, 137:17, 137:19, 137:24, 139:10, 139:13, 157:6 11,000 [2] - 134:12, 141:14 11,117 [1] - 136:13 11,205 [1] - 121:21 11,525 [1] - 121:19 11,737,678,565 [2] - 82:23, 89:14 11,769,634 [1] - 177:19 11-digit [1] - 47:5 11.99 [1] - 149:20 110 [1] - 139:16 110,000 [1] - 140:9 110,942,115,712 [1] - 61:21 115 [1] - 154:17 116,430 [1] - 143:25 11:00 [1] - 58:24 12 [39] - 24:14, 25:11, 67:14, 67:15, 110:16, 119:21, 119:24, 125:5, 125:15, 132:20, 132:21, 134:7, 134:9, 134:11, 134:13, 135:3, 135:21, 136:17, 136:21, 137:19, 137:23, 138:22, 138:24, 139:1, 141:7, 141:10, 141:12, 141:18, 141:20, 142:18, 158:4, 158:5, 159:20, 167:7, 167:12, 173:7, 173:8 12% [1] - 51:5 12,000 [2] - 136:22, 136:23 12,500 [1] - 187:17 12-month [1] - 137:2 120 [2] - 15:12, 139:16 120% [1] - 118:5 122 [1] - 63:3 123 [1] - 177:15 125 [2] - 15:9, 15:10 126 [1] - 3:5 127,902,911 [1] - 65:11 12:04 [1] - 101:21 13 [5] - 140:11, 140:17, 141:9, 141:16, 182:6 13,000 [2] - 120:21, 136:23 13,071,260 [1] - 82:18	13,505 [1] - 121:18 13,537 [1] - 122:6 13,729 [1] - 142:5 13,841 [1] - 142:5 13.3 [1] - 149:8 130,000 [1] - 139:16 1300 [1] - 6:15 1301 [1] - 191:19 130174 [1] - 43:1 1311 [2] - 2:4, 2:16 135,651,650,530 [1] - 65:6 14 [18] - 21:7, 21:11, 22:23, 22:25, 35:17, 61:2, 61:7, 61:24, 62:2, 65:1, 65:3, 65:6, 65:15, 142:15, 157:11, 157:13, 171:21, 179:5 14,100 [1] - 141:13 14,292 [1] - 134:20 14,306,300,666 [2] - 86:6, 89:20 14,448 [1] - 124:12 14,800 [1] - 171:21 14,807 [1] - 121:19 14,850,710 [1] - 147:16 14.36 [1] - 151:3 142 [1] - 65:16 15 [19] - 23:22, 24:14, 25:11, 28:23, 58:24, 71:19, 74:19, 83:13, 109:11, 155:7, 155:13, 158:23, 168:12, 174:21, 175:18, 182:19, 183:24, 190:12 15% [1] - 124:16 15,000 [1] - 178:23 15,186 [2] - 117:5, 118:12 15,253 [1] - 136:11 15,786 [1] - 142:6 15,844 [1] - 142:8 15,958 [1] - 136:12 15.66 [1] - 79:19 15.72 [1] - 84:22 150 [1] - 15:12 156,000 [1] - 139:16 159 [1] - 136:9 15910 [1] - 3:18 15s [6] - 164:4, 164:6, 169:18, 179:11, 179:14, 188:25 16 [4] - 76:5, 76:9, 143:14, 181:22 16% [1] - 51:19 16,344,839,420 [1] - 83:12	16,530 [1] - 124:14 16,650 [1] - 136:10 16,995 [1] - 124:24 16.05 [1] - 84:4 160,000 [1] - 178:1 1600 [1] - 3:17 17 [1] - 77:20 17,428 [1] - 142:7 17,500,000 [1] - 71:9 17,504,084,910 [1] - 88:18 17,623,110 [1] - 87:9 17,763 [1] - 136:12 17,983 [1] - 142:10 17.08 [1] - 78:18 17.8 [1] - 78:21 1714 [1] - 91:14 1717 [2] - 6:6, 6:13 177,123,650 [1] - 86:19 18 [12] - 13:10, 49:13, 79:12, 80:9, 96:14, 122:24, 167:8, 168:4, 168:5, 173:12, 173:14, 187:20 18,000 [2] - 120:23, 122:25 18,028 [1] - 120:20 18,554 [1] - 124:25 18,613 [1] - 136:10 18,644 [1] - 133:22 18,746,520 [1] - 83:21 18,850 [1] - 136:9 18.24 [1] - 147:12 180% [3] - 133:2, 133:14, 133:17 185,000 [1] - 178:5 19 [3] - 79:21, 79:24, 173:5 19,000 [1] - 122:14 19,179,241,470 [1] - 86:23 19,411 [1] - 142:9 19,693 [1] - 122:6 19,943 [1] - 124:23 19087 [1] - 6:15 19103 [2] - 6:6, 6:13 197,341 [1] - 144:7 1980s [1] - 10:8 1983 [1] - 13:7 1987 [1] - 11:11 1992 [1] - 11:15 1993 [1] - 11:15 1995 [1] - 11:18 1996 [9] - 32:5, 85:15, 184:13, 186:2, 186:4, 186:17, 188:5, 188:10
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